



2000

- *Network Communication Server*
- *Network Serial Device Server*
- *Multiport Async Board*
- *PCMCIA Communication Card*
- *Developing Tool*
- *Multiport Sync Board*
- *Internet Sharing Device*

# Product Catalog



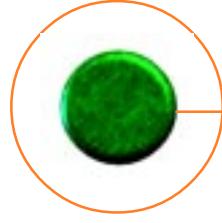
# The Best Multiport Serial Solution

As the world celebrates the new millenium, Information Revolution is moving into high gear. Internetworking is no longer a novel thing, instead, businesses are looking for efficient and flexible ways of utilizing network concepts in their ordinary operations in the hope to just keep afloat in the throat-cutting business world.

Moxa Technologies, the No. 1 multiport serial product supplier in Asia, in this exciting year 2000 presents several new products to provide users with network-based serial communication solutions. These solutions increase port scalability and extend the range between host and devices with existing LAN networks. In addition, each serial port is able to be shared by different hosts, which is perfect for redundant system design. Incorporate Async Server or NPort Server in your year 2000 plan to find out 'Networking Serial Devices Everywhere' is just so easy.

Moxa multiport async/sync products are CE, FCC approved and come with various interface configurations, such as ISA, PCI, CompactPCI, and PCMCIA, for major operation systems, including Windows 2000, Windows NT, Windows 95/98, Windows 3.x, DOS, OS/2, Linux, UnixWare, SCO Unix, Solaris, QNX, etc. Professional serial communication developing tools for Windows environment, PComm Pro, and for TCP/IP network, MOXA ASPP, are also listed in this year's offerings.

With more than 10 years of development experience and over 3,000,000 of serial ports installed around the globe, Moxa technologies will continue to its endless pursue in new technology, high performance and reliability, as well as friendly user interface to serve you in your serial communication applications for another millenium to come.



# Table of Contents

---

<b>Product Overview</b>	1	<b><i>Industio</i> Multiport Family</b>	37
<b>Compatibility and Approval</b>	5	CT-114I	37
<b>Network Communication Server</b>	7	CP-114 Series	39
CN2100 Async Server	9	CP-132 Series	41
CN2500 Async Server	11	CI-132 Series	43
<b>Network Serial Device Server</b>	13	CI-134 Series	45
NPort Server	15	<b><i>Transio</i> Family</b>	47
NPort Server Lite	17	A52/53, A50/51, A60	47
<b>Multiport Async Board</b>	19	<b>Surge Protection</b>	48
<b><i>Intellio</i> Multiport Family</b>		<b>PCMCIA Communication Card</b>	49
C320Turbo Series	22	COMpad-32B/85B	49
C218Turbo Series	25	<b>Developing Tool</b>	51
CP-204J	27	MOXA PCComm Pro	51
<b><i>Smartio</i> Multiport Family</b>		<b>Multiport Sync Board</b>	53
C168H Series	29	C502 Dual-Port Sync Board	55
C104H Series	31	C101 SuperSync Board	57
CI-104J Series	33	C204 4-Port Sync/Async Board	59
<b>Connection Option</b>	35	<b>Internet Sharing Device</b>	61
		SD1000 Internet Sharer	61
		<b>Product Specification Table</b>	63

# Product Overview



## Network Communication Server

### **CN2100 Async Server**

High-Speed, Multi-Platform Communication Server

- LAN-to-Async connectivity
- One 10Base2/10BaseT LAN interface
- 8/16 RS-232 ports with unparalleled 921.6Kbps speed
- Throughput 460.8Kbps(8 ports); 230.4Kbps(16 ports)
- ASPP programming tool for cross-platform async device control over TCP/IP network
- Windows NT Real COM port driver
- Unix Fixed tty program
- Remote access services and static routing
- Ideal for PC/Workstation in Windows/UNIX OS



## Network Serial Device Server

### **NPort Server**

RS-232 Device Server for TCP/IP Network

- Add 8 or 16 RS-232 ports per Windows NT/UNIX host (256 max. per NT host)
- Stand alone server, no slot needed
- Control RS-232 devices located virtually anywhere
- Rack mountable
- Support Windows NT, PC-based UNIX



### **CN2500 Async Server**

Coming Soon

Multi-Functional 100 MB Communication Server

- LAN-to-Async connectivity
- One 10/100BaseT LAN interface
- 4/8/16 RS-232 ports with dedicate Tx/Rx LED indicators
- 15KV surge protector for every signal
- ASPP programming tool for cross-platform async device control over TCP/IP network
- Windows NT Real COM port driver
- Unix Fixed tty program
- Remote access services and RIP I/II routing
- Ideal for PC/Workstation in Windows/UNIX OS



### **NPort Server Lite**

Coming Soon

1/2/4 Ports Industrial Serial Device Server for 100M Ethernet

- Add 1/2/4 RS-232 or RS-422/485 ports to Windows NT/95/98
- Auto-detecting 10/100M Ethernet interface
- Built-in human interface with Liquid Crystal Module (LCM) and buttons
- All ports with surge protection 15KV ESD
- Support DHCP
- Self diagnostic and report
- Software selectable RS-422/485 interface



## *Intellio Multiport Family*

### *Intellio C320Turbo Multiport Controller*

*Flexible Serial I/O Solution for Ever-expanding System*

- 8 to 32 RS-232 or RS-422 ports, expand up to 128 ports
- PCI or ISA bus
- Dual RISC processor architecture (TMS320BC52 x 2)
- Speed up to 460.8K bps
- Connection module can be located 100M away
- Rack mount or desktop module selectable



### *Intellio C218Turbo Series*

*Highest Performance Serial I/O Solution*

- 8 RS-232 or RS-422/485 ports,
- PCI or ISA bus
- RISC processor (TMS320C203)
- Speed up to 921.6K bps
- Menu-driven setup, easy configuration



### *Intellio CP-204J*

*Intelligent Multiport board for Embedded System*

**NEW**

- 4 RS-232 ports
- PCI bus
- RISC processor (TMS320C203)
- ASIC design in half size
- Built-in RJ45 connectors on the bracket
- Speed up to 921.6K bps



## *Smartio Multiport Family*

### *Smartio C168H Series*

*Easy-to-use 8 Ports Serial Board*

- 8 RS-232 or RS-422/485 ports
- PCI or ISA bus
- ASIC design in half size
- Speed up to 921.6K bps
- No switch no jumper
- Optional surge protection (25KV ESD)



### *Smartio C104H Series*

*Easy-to-use 4 Ports Serial Board*

- 4 RS-232 ports
- PCI or ISA bus
- ASIC design in half size
- Speed up to 921.6K bps
- No switch no jumper
- Optional surge protection (25KV ESD)



### *Smartio CI-104J Series*

*Multiport Board for Embedded System*

**NEW**

- 4 RS-232 ports
- ISA bus
- ASIC design in half size
- Built-in RJ45 connectors on the bracket
- Speed up to 921.6K bps
- No switch no jumper
- Optional surge protection (25KV ESD)



# Product Overview



## Industio Multiport Family

### Industio CT-114I

3 in 1 Multiport Serial Board for CompactPCI

- 4 RS-232 or RS-422/485 ports
- CompactPCI bus
- RS-485 Automatic Data Direction Control (ADDC)
- On-board termination resistors for impedance matching
- TxD/RxD LEDs for easy monitoring
- Speed up to 921.6K bps
- Optical isolation (2KV)



### Industio CP-114 Series

4 Ports 3 in 1 Industrial Communication Board for PCI



- 4 RS-232 or RS-422/485 ports
- PCI bus
- RS-485 Automatic Data Direction Control (ADDC)
- On-board termination resistors for impedance matching
- Speed up to 921.6K bps
- Optional optical isolation (2KV) or surge protection (25KV ESD)



### Industio CI-134

4 Ports RS-422/485 Industrial Communication Board

- 4 RS-422/485 ports
- ISA bus
- RS-485 Automatic Data Direction Control (ADDC)
- On-board termination resistors for impedance matching
- Speed up to 921.6K bps
- Optional optical isolation (2KV) or surge protection (25KV ESD)

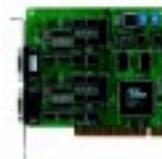


### Industio CP-132 Series

2 Ports RS-422/485 Industrial Communication Board for PCI



- 2 RS-422/485 ports
- PCI bus
- RS-485 Automatic Data Direction Control (ADDC)
- On-board termination resistors for impedance matching
- Speed up to 921.6K bps
- Optional optical isolation (2KV) or surge protection (25KV ESD)



### Industio CI-132 Series

2 Ports RS-422/485 Industrial Communication Board

- 2 RS-422/485 ports
- ISA bus
- RS-485 Automatic Data Direction Control (ADDC)
- On-board termination resistors for impedance matching
- Speed up to 921.6K bps
- Optional optical isolation (2KV) or surge protection (25KV ESD)



## Transio Family



### Transio A52/A53

Smart RS-232 to RS-422/485 Bi-directional Converter



- RS-485 Automatic Data Direction Control (ADDC) with no baud rate switch setting hassle
- RS-422 support CTS, RTS signals for hardware flow control
- All RS-422/485 signals provide surge protection (25KV ESD)
- All RS-422/485 signals support optical isolation protection (2KV DC)(A53)
- Over current protection
- Built-in termination resistors (selectable)



## PCMCIA Communication Card

### COMpad-32B/85B

RS-232 or RS-422/485 PCMCIA Card for Mobile Data Acquisition Applications

- 2 or 4 RS-232 or RS-422/485 ports
- PCMCIA Type II
- Speed up to 115.2K bps
- Standard COM port compatible
- DOS library and utilities
- C/C++, Delphi, Visual Basic programming library
- Optional Windows NT and Windows 95/98 library and utilities



## Multiport Sync Board Family

### C502 Dual-Port Sync Board

Dual-Port High Speed Synchronous Board for Windows NT

NEW

- 2 RS-232/V.35 ports
- Top-level RISC CPU and 1MB RAM
- Up to 8Mbps speed
- Windows NT HDLC development tool
- C/C++, Delphi, Visual Basic programming library



## Developing Tool

### MOXA PComm Pro

A Professional Serial Comm Developing Tool for Windows 2000, Windows NT, Windows 95/98

- Easy-to-use API (More than 50 functions)
- Built-in ZModem, YModem, XModem, Kermit and ASCII file transfer protocols
- Support VB, C/C++, Delphi example programs
- Data Scope, Terminal Emulator and Performance Analyzer utilities included
- Interactive online manual for easy reference
- Compliant with any standard COM port



### C101 SuperSync Board

Economic Sync I/O Solution

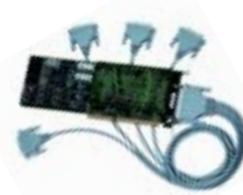
- 1 RS-232/V.35 port
- Up to 7Mbps speed
- HDLC protocol supported
- Sync API available



### C204 4-Port Sync/Async Board

4-Port Intelligent Sync/Async Board

- 4 individually programmable RS-232/V.35 ports
- Up to 1.544Mbps
- HDLC, SDLC, BSC, Async protocols supported
- Sync/Async API available



## SD1000 Internet Sharer

### SD1000

Easy and Simultaneous Shared Internet Access

- 4 10BaseT LAN ports
- 1 RS-232 port
- 64 virtual e-mail boxes
- Dial-on-demand and automatic disconnection
- Support TCP/IP, Telnet, HTTP, SMTP, POP3, NNTP, FTP, Gopher, DHCP, PAP, CHAP



# Compatibility and Approval

*Choosing MOXA Means Choosing Reliability and Compatibility*

Because Moxa provides quality multiport serial products with high reliability and compatibility, both in hardware and software, to customers. Moxa supports almost all kinds of OS platform for its multiport serial products that are CE and FCC approved. Moxa's products have passed hardware compatibility test under Microsoft Windows, SCO UNIX, Solaris, QNX, Linux and FreeBSD, etc. In addition, Moxa is an active member of Citrix business alliance (CBA) and PICMG which guarantees Moxa's products full compatibility with those technologies.

Moxa's products have been approved by many OS vendors which guarantee 100% of software compatibility. (Moxa's products listed in various web sites as shown.)



The screenshot shows a Microsoft Internet Explorer browser window with the URL [www.microsoft.com/hcl/default.aspx?VID=34](http://www.microsoft.com/hcl/default.aspx?VID=34). The search results for 'Moxa Technologies Co., Ltd., all Device Types' are displayed. A table lists four products under the 'Miscellaneous/Multiport Serial Adapters' category. The table columns are Type, Product, Interface, NT4.0, NT4.0 (Driver), and NT4.0 (Caption). The products are:

Type	Product	Interface	NT4.0	NT4.0 (Driver)	NT4.0 (Caption)
Miscellaneous/Multiport Serial Adapters	RS232C/RS422/RS485 Multi-Port Serial Adapter	RS232			
Miscellaneous/Multiport Serial Adapters	Intelligent RS232C/RS422/RS485 Multi-Port Serial Adapter	RS232			
Miscellaneous/Multiport Serial Adapters	Intelligent RS232C/RS422/RS485 Multi-Port Serial Adapter	RS232			

Microsoft Windows Hardware Compatibility List in the Miscellaneous/Multiport Serial Adapters category



The screenshot shows a web browser displaying the 'Supported Serial Hardware' section of the Linux Serial HOWTO document. A list of supported serial hardware is shown, with several Moxa products highlighted in blue. An orange box highlights the 'Moxa C-10000 Series' entry, which includes a link to 'http://www.moxa.com.tw/serial/c10000.htm'. The text in the box reads: 'Moxa C-10000 Series' and 'http://www.moxa.com.tw/serial/c10000.htm'. The link is labeled 'Moxa C-10000 Series'.

Linux Serial HOWTO Document for Intelligent and Dumb Multiport Serial Boards/Cards/Adapters



The screenshot shows a web browser displaying the 'Commercial Vendors - Hardware' section of the FreeBSD documentation. A list of commercial hardware vendors is shown, with Moxa highlighted in blue. An orange box highlights the 'Moxa' entry, which includes a link to 'http://www.moxa.com.tw/serial/c10000.htm'. The text in the box reads: 'Moxa' and 'http://www.moxa.com.tw/serial/c10000.htm'. The link is labeled 'Moxa'.

FreeBSD Commercial Hardware Vendors



Communications Hardware in the BSD Third Party Product Directory

SCO OpenServer Release 5 Hardware Compatible in the Multiport Serial Adapters category

QNX Third Party Solutions



*Moxa is an active member of PICMG.*

The PICMG (PCI Industrial Computer Manufacturers Group) is a consortium of over 450 companies who collaboratively develop specifications that adapt PCI technology for use in industrial and telecommunications computing applications.

 *Moxa full products are CE approved.*

 *Moxa is an active member of Citrix.*

The Citrix is the leading thin-client/server solution provider for Windows NT Terminal Server with its cutting-edge ICA (Independent Computing Architecture) technologies.

 *Moxa full products are FCC approved.*

# Network Communication Server

*Multi-Functional Communication Server for both PC and Workstation Worlds*

MOXA Async Server Family, namely CN2100 and CN2500, provides powerful and reliable solutions to connect async devices with 4/8/16 RS-232 serial ports, like terminals, modems, POS devices to TCP/IP 10/100M Ethernet hosts. If your application environment requires either UNIX-based workstations or Windows NT-based PC servers, Async Server offers the best of both worlds.

## **Integrate Terminal Server, Remote Access Server, Async Device Server and Printer Server**

MOXA Async Server is successfully installed in banking and travel reservation systems connecting terminals, as **terminal server**; in medium-sized enterprise networks connecting modems, as **remote access server**; in telecom companies connecting async-interface equipment, as **async device server**; or in stock exchange agents connecting printers, as **printer server**. Each of Async Server 4/8/16 serial ports is individually configurable. Multi-functionality is achieved by configuring each serial port of Async Server according to your application needs.

## **Proven Workstation Solution with Convenient TCP/IP Programming Tool**

CN2100/CN2500 Async Server is perfect to connect async devices among different computer platforms, such as PC

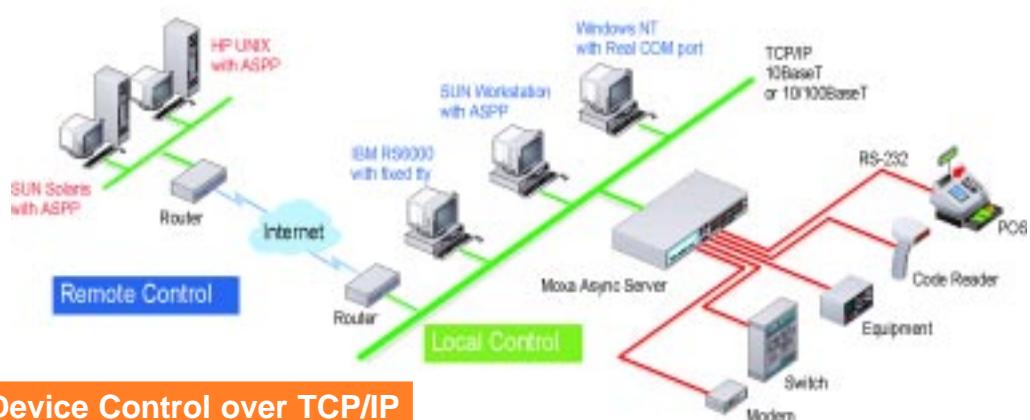
server, IBM/HP/SUN workstations, in major operation systems, like Windows NT, SCO Unix, and Linux, as long as data is transmitted in TCP/IP socket. To advance async device control over TCP/IP network, MOXA ASPP (Async Server Proprietary Protocol) programmable protocol enables network hosts, with simple TCP/IP socket programming, to control async devices connected to Async Server as if locally attached.

## **Windows NT Real COM Port Driver**

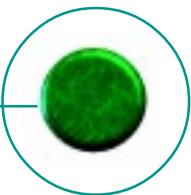
For the booming Windows NT users, Async Server transforms ASPP into Windows NT Real COM port driver, compatible to Windows NT's standard COM port driver and RS-232 signal control. The extended COM ports from Async Server may be used seamlessly by applications such as modem pooling, fax pooling, data acquisition, thin-client and Windows NT RAS.

## **Unix Fixed tty Program**

MOXA Async Server supports UNIX fixed tty in SCO Unix, HP-Unix, IBM AIX, Sun Solaris platforms. It enables Unix hosts to keep track of terminal login history by assigning fixed tty name to each terminal. Unix fixed tty is frequently applied in security critical terminal access applications like banking and other financial services.



# *Async Server Family*



## ***Independent Remote Access Server***

Remote access or intranet dial up service is a popular application for Async Server as well. Mobile users or telecommuters, with modem and public phone line, are able to access Intranet databases at any time.

Moxa Async Server provides multiple levels of security to protect your vital business information. Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP) enable the username and password to be transmitted in encryption against eavesdroppers.

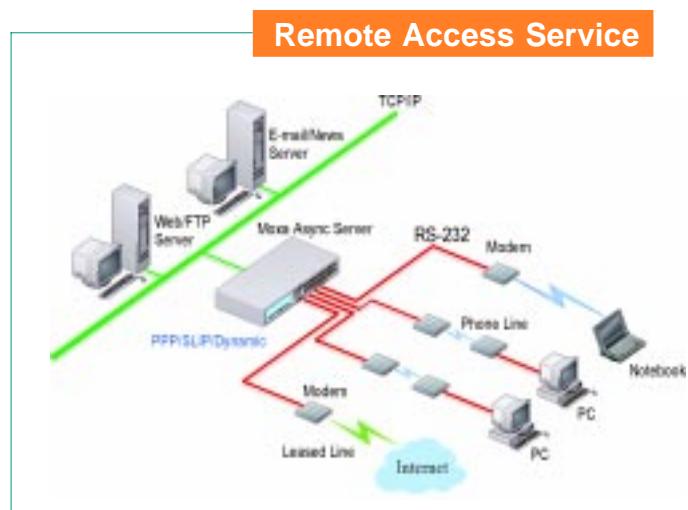
## ***Support RADIUS for both Windows NT and UNIX***

RADIUS (Remote Authentication Dial-In User Service) over Windows NT and UNIX systems is supported to extend security control over large user profile databases. Dial-Back feature strengthens account authentication by dialing back to the authorized telephone number. Async Server can also be password-protected avoiding unauthorized configurations. Choose one or combine several security measures to make your network safer.

## ***Enhanced Routing Solution***

Low cost routing functionality is also an popular application for one-central-to-many-small office environment. With MOXA SD1000 Internet Sharer installed in remote small offices, as simple async router, Async Server in central office operates as professional multiport serial router with embedded RIP I/II protocol.

Both CN2100 and CN2500 Async Server are manufactured to achieve exceptional performance and stability. The installation and management are also easy for novice or experienced users.



# CN2100 Async Server

*High-speed, Multi-platform Communication Server*

## Overview

CN2100 Async Server, with 8/16 RS-232 ports and one 10Base2/T LAN interface, establishes LAN-to-Async connectivity, such as async device control in telecom industries, remote access in enterprise networks, and terminal access in financial/travel services.

CN2100 Async Server is more cost-effective than any other similar servers you may find in the market in terms of investment. With CN2100 Async Server outperforming speed, up to 921.6Kbps, your network environment can easily be extended without concerning current investment.

CN2100 Async Server employs a high performing RISC processor integrated with industry-leading software, bringing communication throughput to 230.4Kbps, while running 16 ports simultaneously (460.8Kbps for 8 ports). It offers an alternative to users frustrated with slow connections and administrators worrying about increasing networking cost. Moreover, the high performance strengthens your business competitiveness, providing more conveniences to your clients.

You can easily configure and manage CN2100 Async Server with point-and-click menu. It is managed or monitored either on local console port or via Telnet from anywhere on the network. SNMP and MIB II protocols are also supported for better network management.

## Features

- LAN-to-Async connectivity
- One 10Base2 and one 10BaseT LAN interface
- 8 or 16 serial ports at up to 921.6Kbps high speed
- Desktop/rackmount flexibility



**CN2100**

- One parallel printer port as TCP/IP printer server
- Throughput 460.8Kbps for 8 ports, 230.4Kbps for 16 ports
- ASPP programming tool for cross-platform async device control over TCP/IP network
- Ideal for SUN, HP, IBM workstations in controlling async devices
- Windows NT Real COM Port driver
- UNIX Fixed tty program
- Easy Windows configuration
- Auto-recognition for PPP/SLIP/Terminal
- Max. 4 Telnet/Rlogin sessions under Terminal mode
- Support SNMP, MIB II Network Management
- Support PAP, CHAP, RADIUS, Dial-Back Security
- Support Static routing
- Support Telnet, Reverse Telnet, and Rlogin
- Support PAP, CHAP, Dial-Back, Server Password, and RADIUS Security
- Auto-recognition for PPP/SLIP/Terminal
- Max. 4 Telnet/Rlogin sessions per port in Terminal mode
- Upgradeable Firmware via Flash ROM

## Applications

- Transparent Async Device Control
- Server Console Management
- Remote Group Printing
- Terminal Server for Multi-user System
- Branch to Central Office Connectivity
- Internet/Intranet Remote Access

Port	2	4	8	16	32
Interface	232	422	485		



## Specification

### Hardware

CPU	32-bit Intel i960 processor
RAM	1MB
Flash ROM	512KB
UART	16C550C

### Interface

LAN	One 10Base2 (BNC) and 10BaseT (UTP RJ45)
Serial	8 or 16 RS-232 Ports (RJ45), RS-422 (Optional)
Console	One RS-232 Console Port
Printer	One Centronic Parallel Port(DB25)
LED indicators	Data Transmission, Receiving, and Power Status
Port signals	DTR, DSR, DCD, RTS, CTS, TXD, RXD, and GND

### Protocols

Network	TCP/IP, ARP, UDP, ICMP, RCP, DNS, and Static Routing
WAN	Auto-Sensing PPP/SLIP/Terminal
Application	Telnet/Rlogin/Reverse Telnet
Security	PAP/CHAP, RADIUS, Dial-Back, and Server Password
Network Management	SNMP
IP routing	Static
TCP/IP programming	Moxa ASPP

### Software

Real COM port	Windows NT
Fixed tty	SCO Unix, Linux, IBM AIX, SUN Solaris, HP-UNIX
Terminal sessions	4 sessions per port with hot key
Configuration	Terminal from Console; Telnet from network

### Power & Environmental

Rackmount	19" Standard Rack with enclosed toolkit
Power	Internal Auto-sensing 90~260V, 47~63Hz, 60W
Operating temp.	0~50°C
Dimensions (without ear)	W10.6"(27cm)x D6.3"(16cm)x H1.75"(4.45cm)
Package weight	2.5kg

### Ordering Information

CN2116	16 port Async Server with one CN20030 and one CN20040
CN2108	8 port Async Server with one CN20030 and one CN20040

### Optional Accessories

CN20030	3 ft (150 cm) RJ45 to female DB25 RS-232 cable
CN20040	3 ft (150 cm) RJ45 to male DB25 RS-232 cable
A50	RS-232 to RS-422/RS-485 bi-directional converter
A51	RS-232 to RS-422/RS-485 bi-directional converter with 2000V optical protector
A60	RS-232 Surge Protection converter



# CN2500 Async Server

*Multi-Functional 100 MB Communication Server*

## Overview

MOXA CN2500 Async Server, with the latest 10/100BaseT LAN interface and 4/8/16 serial interfaces, represents multi-functional Communication Server in the market.

CN2500 incorporates all popular features and functions of CN2100, such as ASPP Async Device Control, Rtelnet console management, or PPP/SLIP/Terminal remote access, into the new cutting-edge hardware design. It adopts 19" rackmount chassis, better fitting with other network equipment. Each of its 4/8/16 serial ports has dedicate LED indicator to display TX/RX status at all time, and surge protector for every signal.

Software feature is also enhanced in CN2500 technology. In addition to RADIUS Server for Dial-In accounts in CN2100, CN2500 embeds user database, providing alternatives for user profile management. RIP I, II, another advancement in Async Server, brings LAN-to-LAN routing more convenient than ever.

CN2500, like CN2100, proves exceptional stability and performance among UNIX-based SUN, IBM, and HP workstations as well as Windows or LINUX based PC. Blending MOXA async technology into new 100 MB LAN environment, CN2500 truly represents easy LAN-to-Async solutions in the most cost-effective way.

## Features

- LAN-to-Async connectivity
- Each serial port may be shared by network hosts running different OS
- One 10/100BaseT LAN interface with data transfer LED
- 4/8/16 high speed serial ports with dedicate Tx/Rx LED



**CN2500**

- 15KV surge protector for every signal
- One parallel printer port as TCP/IP printer server
- 19" rackmount
- Serial speed up to 230.4Kbps
- ASPP programming tool for cross-platform async device control over TCP/IP network
- Ideal for SUN, HP, IBM workstations in controlling async devices
- Windows NT Real COM Port driver
- Support Windows NetBEUI
- UNIX Fixed tty program
- Easy Windows configuration
- Auto-recognition for PPP/SLIP/Terminal
- Max. 8 Telnet/Rlogin sessions in Terminal mode
- Support SNMP, MIB II Network Management
- Support PAP, CHAP, RADIUS, Dial-Back Security
- Support Static, RIP I, II routing
- Support Telnet, Reverse Telnet, and Rlogin
- Upgradeable Firmware via Flash ROM

## Applications

- Transparent Async Device Control
- Branch to Central Office Routing
- Internet/Intranet Remote Access
- Server Console Management
- Terminal Server for Multi-user System
- Remote Group Printing

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

CPU	32-bit Intel i960 processor
RAM	2MB for CN2516
	1MB for CN2508/CN2504
Flash ROM	512KB
UART	16C654
Surge Protector	15KV ESD surge protector for every signal

### Interface

LAN	10/100BaseT(UTP RJ45)
Serial	4/8/16 RS-232 Ports (RJ45)
Console	One RS-232 Console Port(RJ45)
Printer	One Centronic Parallel Port(DB25)
LED indicators	Tx/Rx LED for each serial port Power LED, Ready LED 10MB LAN LED, 100MB LAN LED, T/R Data Transfer LED
Port signals	DTR, DSR, DCD, RTS, CTS, TXD, RXD, and GND

### Protocols

Network	TCP/IP, ARP, UDP, ICMP, RCP, NetBEUI
WAN	PPP, SLIP, CSLIP, Dial-on-demand, Dial-out
Application	Telnet, Rlogin, Rtelnet, RAW TCP, DNS, LPD, RCP, Pure Term, Wins
Security	RADIUS, Dialback, PAP, CHAP, Local User/Password
Network management	SNMP, MIB II
IP routing	Static, RIP I, RIP II
TCP/IP programming	MOXA ASPP

### Software

Real COM port	Windows NT
Fixed tty	SCO Unix, Linux, IBM AIX, SUN Solaris, HP-UNIX
Terminal sessions	8 sessions per port with hot key

Configuration Terminal from Console;  
Telnet from network

### Power & Environmental

Rackmount	19" Standard Rack
Power	Internal Auto-sensing 90~260V, 47~63Hz, 60W
Operating temp.	0~50°C
Dimensions (without ear)	W17.32"(44cm) x D7.48"(19cm) x H1.73"(4.4cm)

## Ordering Information

CN2516	16 port CN2500 Async Server with one CN20030 and one CN20040
CN2508	8 port CN2500 Async Server with one CN20030 and one CN20040
CN2504	4 port CN2500 Async Server with one CN20030 and one CN20040

### Optional Accessories

CN20030	3 ft (150 cm) RJ45 to female DB25 RS-232 cable
CN20040	3 ft (150 cm) RJ45 to male DB25 RS-232 cable
A50	RS-232 to RS-422/RS-485 bi-directional converter
A51	RS-232 to RS-422/RS-485 bi-directional converter with 2000V

CN2500 Front Panel



CN2500 Rear Panel



# Network Serial Device Servers

## *Standalone Multiport Serial Device Server for Ethernet*

“Everything is networked” is not far away. To network numerous serial devices without network port, NPort Server family, Moxa’s revolutionary line of standalone multiport serial device servers, is designed to serve as a bridge for Serial-to-Ethernet connectivity. It delivers:

### **Network-enabled Solution:**

#### **Bringing Serial Devices to Ethernet or Internet**

Providing 1, 2, 4, 8 or 16 RS-232 or RS-422/485 ports and one 10/100M Ethernet interface, NPort Server Family allows Windows NT, Windows 95/98 and PC-based Unix hosts to control numerous distributed serial RS-232 devices like instruments, terminal, modem, and industrial equipment, over TCP/IP network. For instance, a dedicated port redirect driver, NPort Driver, enables Windows NT and Windows 95/98 hosts to transparently access the ports on NPort Server as if they were physical COM ports.

### **Thin Server Solution:**

#### **Cutting PC Investment with Standalone Servers**

Unlike traditional PC slot-required multi-port serial boards, standalone NPort Server Family operates independently on the Local Area Network (LAN). It needs no host’s limited slot, IRQ and memory resources. There is no longer need to buy extra PC for adding serial devices or to upgrade PC for better performance. When additional devices are required, simply attach NPort Server Family to the LAN, saving you tremendous time and efforts in taking down the host and struggling with hardware conflicts.

### **Transparent Solution:**

#### **Serial to Serial with Transparent Ethernet Link**

With a pair of 1-port NPort Server Lites, serial-to-serial transparent connection can be achieved to connect two serial devices without any modification to the existing

applications and any installation of redirect driver. Save the cost of leased line or unleash the distance limitation of serial line.

### **Distributed and Scalable Solution:**

#### **Greatest Layout Flexibility and Port Scalability for Distributed and Scalable Applications**

TCP/IP network represents a cost-effective distributed solution for any-size ever-growing businesses requiring layout flexibility and port scalability. Serial devices attached to NPort Server can be placed anywhere over TCP/IP network and linked to Windows NT, Windows 95/98 or PC-based Unix hosts seamlessly. For example, each Windows NT host is entitled to control up to 256 real COM ports, tailored for your growing business. NPort Server family can expand boundlessly with Ethernet/Internet environment to control the serial devices distributed among different floors, buildings, areas, cities or even countries.

### **Easy-to-use Solution:**

#### **Quick Installation, Easy Administration and Convenient Maintenance**

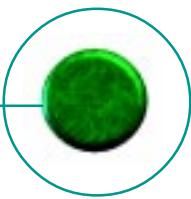
Starting from your first installation, NPort Manager and its wizard guide you through every process. Friendly Windows interface makes you an expert in controlling these serial devices even if you’re a fresh beginner. What’s more, there are many comprehensive utility tools, such as monitor, diagnostics, data scope and performance analyzer, to help you effectively administer NPort Server.

### **Least Down-time Solution:**

#### **Hot-swap and Port-sharing Capabilities Minimize System Down Time**

When add or replace NPort Server family, there is no need to take down the host and stop all host services. Hot swappability not only simplifies maintenance procedures

# NPort Server Family



but also improves outage management by minimizing overall productivity impacts. In addition, each serial port can be shared by different hosts, which is perfect for redundant system design. Therefore, NPort Server family effectively minimizes system down time and significantly cut the maintenance cost.

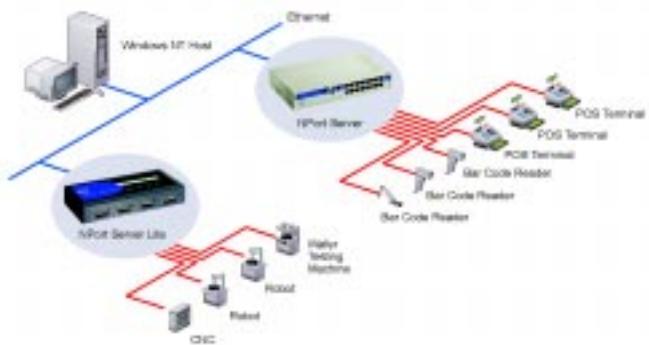
## Professional Development Solution: MOXA PComm Pro

MOXA PComm Pro, the most powerful serial communication development tools minimize the time to market. You do not have to study complex Microsoft Win32 COMM API to develop 32-bit solutions. With the powerful libraries and useful utilities, such as data scope and performance analyzer, developing serial comm. application is just a breeze.

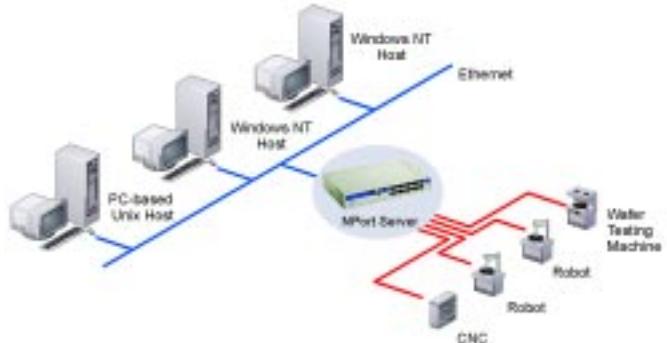
## Applications

- Industrial/Factory automation system
- SCADA system
- Telecommunication
- Automatic warehouse control system
- Building automation system
- Wafer fabrication system
- Self-service banking system
- Large scale retail system
- Other remote and distributed serial devices control

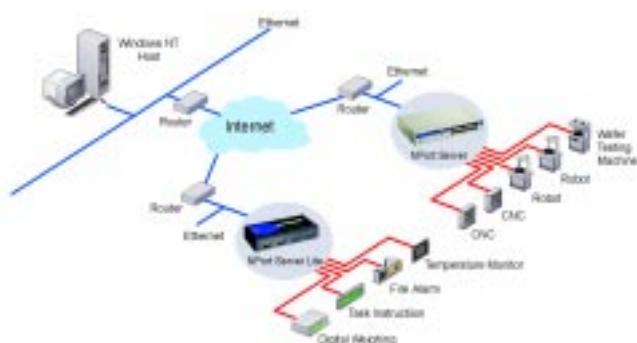
### Single Host Controls Distributed Devices



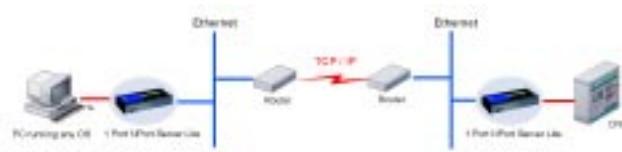
### Multiple Hosts Share Same Devices



### Control Remote Devices through Internet



### Connect Two Devices Transparently



# NPort Server

## RS-232 Device Server for TCP/IP Network

### Overview

NPort Server is an ideal multiport serial product for customers who are looking solutions

- To control RS-232 devices in remote area
- To control RS-232 devices located in different plants/floors
- To control large number of RS-232 devices
- To let RS-232 devices shared by multiple hosts



**NPort Server**

Via NPort Servers, maximum 256 RS-232 devices, near or far, here or there, can be controlled by one Windows NT host. Because NPort Server is a network-based serial device server for connecting RS-232 machines, CNCs, PLCs, weighing scales, scanners and other devices directly to the TCP/IP network (Ethernet or Internet). NPort Server allows Windows NT users to control serial devices located virtually anywhere.

### Features

#### Hardware

- Can control RS-232 devices located virtually anywhere (via Ethernet or Internet)
- Can control large number of RS-232 devices (256 max. per NT host)
- Standalone server, no interface board is required, no slot is wasted
- No resource conflict problem such as IRQ, I/O address
- Easy cable layout using standard Ethernet cable
- Capability for hot-swap, easy maintenance

#### Software

- RS-232 devices on NPort Server can be shared by multiple hosts
- Windows COM port compatible, ready-made application can access the COMs on NPort Server
- Support security mechanism to avoid unauthorized access
- Provide friendly Windows GUI making setup and configuration very simple
- Provide a professional RS-232 communication developing tool, MOXA PComm Pro, which includes easy-to-use API to shorten the developing time, Data Scope utility to see what's on the RS-232 line and Performance Analyzer to learn the serial comm performance

### Applications

- Industrial/Factory automation system
- SCADA system
- Automatic warehouse control system
- Building automation system
- Wafer fab. manufacturing system
- Self-service banking system
- Large scale retail system
- Other remote and distributed serial devices control

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

Processor	Intel i960CA 32 bit RISC processor
I/O controller	16C550C or compatible (auto hardware flow control)
Memory	1M Bytes
Connector type	RJ45
Rack-mount	Yes

### Interface

LAN interface	10 Base 2, 10 Base T
Serial interface	RS-232
No. of port	8 or 16
Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	256 (per Windows NT)

### Configuration

Parity	None, even, odd
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	Nil
I/O address	Nil

### OS supported

DE-309-8	Windows NT (running TCP/IP), SCO
DE-309-16	Open Server, SCO UNIX, UnixWare

### Power and Environment

Power requirement	90V~260V, 47~63Hz, 60W
Operating temp.	0 ~ 55°C
Dimension	270mmx160mmx44.5mm

## Ordering Information

DE-309-8	8 ports RS-232 device server
DE-309-16	16 ports RS-232 device server
All items include	<ul style="list-style-type: none"> <li>• Windows NT device driver and manual</li> <li>• MOXA PComm Pro – professional serial comm developing tool (CD)</li> <li>• One CN20030 and one CN20040 cable</li> </ul>

### Optional Accessories

A52	Smart RS-232 to RS-422/485 Bi-directional Converter
A53	Smart RS-232 to RS-422/485 Bi-directional Converter, supports optical isolation protection (2KV)
A60	RS-232 Surge Protector (25KV ESD)
CN20030	150cm RJ45 to female DB25 RS-232 (DCE) cable
CN20040	150cm RJ45 to male DB25 RS-232 (DTE) cable



# NPort Server Lite

1/2/4 Ports Industrial Serial Device Server for 100M Ethernet

## Overview

NPort Server Lite Series is an industrial-strength network-based serial device server for connecting up to four RS-232 or RS-422/485 devices like CNCs, PLCs, weighing scales, scanners and other devices directly to the 10/100M Ethernet network running TCP/IP.

Through the revolutionary built-in human interface with Liquid Crystal Module (LCM) for displaying data/status and buttons for inputting data or selecting mode, you can easily set up the server, such as IP address, net mask, and gateway, and monitor the server status and data transmission. Eliminate the need to prepare additional PCs during installation.

In addition to allowing serial devices to get networked, any host (PC Server or Workstation) without network access can also access remote serial device via adding NPort Server Lite to the existing serial port. In other word, a pair of 1-port NPort Server Lites can be configured over Ethernet and serve as a transparent serial channel without platform and distance limitation.

## Features

### Hardware

- Can control RS-232 or RS-422/485 devices virtually anywhere (via Ethernet or Internet)
- Provide unlimited number of RS-232 or RS-422/485 ports (only limited by system restriction, 256 max. per Windows NT host, 128 max. per Windows 95/98 host)
- Auto-detecting 10/100 Mbps Ethernet interface
- Built-in human interface with Liquid Crystal Module (LCM) and buttons for setting up the server and displaying server status
- Industrial-strength, highly reliable at all ports with surge protection 15KV ESD



**NPort Server Lite**

- Capability for hot-swap, easy maintenance.
- RS-485 Automatic Data Direction Control (ADDC)

### Software

- Provide pair-connection mode and host-based mode
- No host reboot required after adding new NPort Server Lite
- Support Windows NT, Windows 95/98
- Support DHCP
- Self diagnostic and report
- Software selectable RS-422/485 interface

## Applications

- Industrial/Factory/Laboratory automation
- SCADA system
- Automatic warehouse control system
- Building automation system
- Wafer fabrication system
- Self-service banking system
- Retail system
- Other remote and distributed serial devices control

Port	1	2	4	8	16
Interface	232	422	485		

## Specification

### Hardware

Processor	80186
I/O controller	
DE-301/331:	16C550C or compatible x 1
DE-302/332:	16C550C or compatible x 2
DE-304/334:	16C550C or compatible x 4
Memory	512K bytes
Connector type	DB9

### Interface

LAN interface	Auto-detecting 10BaseT/100BaseT
Serial interface	RS-232 or RS-422/485
No. of port	1/2/4 Ports
Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND RS-485: Data+/-, GND

### Performance

Speed	50 ~ 230.4K bps
Max. no. of port	256 per Windows NT, 128 per Windows 95/98

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	Nil
I/O address	Nil

### OS supported

DE-301	
DE-302	
DE-304	Windows NT, Windows 95/98 (running TCP/IP)
DE-331	
DE-332	
DE-334	

### Power and Environment

Operating temp.	0 ~ 55°C
Surge Protection	15KV ESD
Operating humidity	5% ~ 95%

## Ordering Information

DE-301	1 port RS-232 device server
DE-302	2 ports RS-232 device server
DE-304	4 ports RS-232 device server
DE-331	1 port RS-422/485 device server
DE-332	2 ports RS-422/485 device server
DE-334	4 ports RS-422/485 device server
All items include	<ul style="list-style-type: none"> <li>• Windows NT, Windows 95/98 device driver and manual</li> <li>• MOXA PComm Pro – professional serial comm developing tool CD</li> <li>• Cross-wired 10/100M Ethernet Cable</li> </ul>

### Optional Accessories

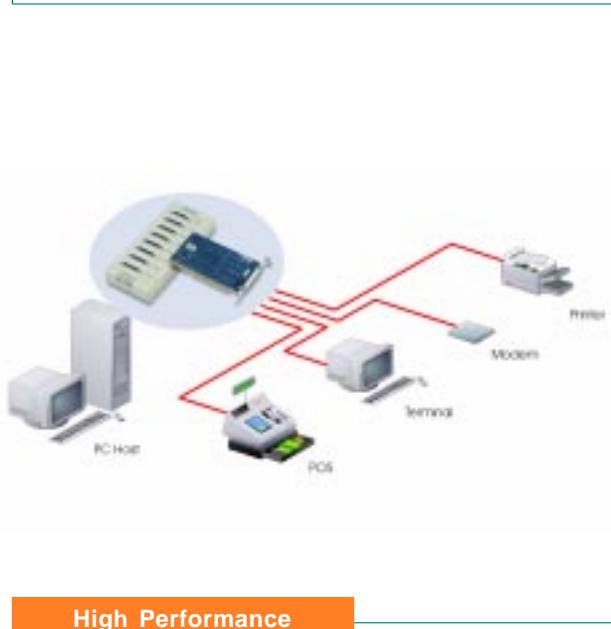
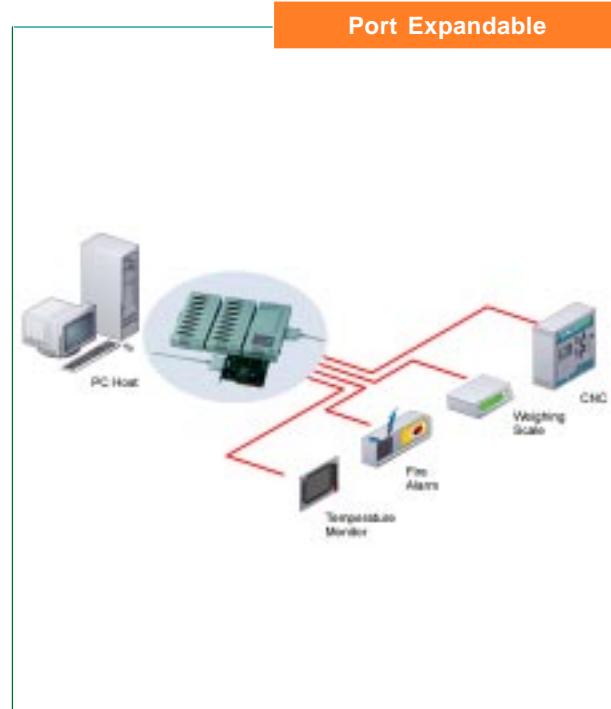
A52	Smart RS-232 to RS-422/485 Bi-directional Converter
A53	Smart RS-232 to RS-422/485 Bi-directional Converter, supports optical isolation protection (2KV)
A60	RS-232 Surge Protector (2KV)

# Multiport Async Board

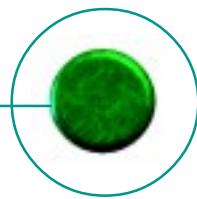
**M**oxa provides a full range of multiport async board-level products, which add 2 to 32 serial ports to a single PC/Notebook slot of PCI, ISA, CompactPCI, or PCMCIA bus interface. This can boost the PC capacity to accommodate as many as 128 serial ports in one system. MOXA products provide smart and reliable multiport serial solutions, with the best cost/performance, to your system, no matter it is a small-sized, medium-sized or large-scale system.

Nowadays, the PC-based multiport serial connectivity is widely used in many applications such as:

- Remote Access Services
- Industrial/factory Automation
- Internet Services
- Multiple Point Data Acquisition
- Office Automation
- Test & Measurement Systems
- Multiuser Systems
- Robotics Control
- Point of Sale (POS)
- Process Control
- Embedded Systems
- Security Systems
- Stock Market Analysis System
- Medical equipment data collection
- Environment monitoring system
- Building automation
- Mobile Data Acquisition
- Kiosk station
- Telecommunication Maintenance
- Transportation surveillance



**High Performance**



**M**oxa multiport async board products are developed in high quality with the very latest hardware and software techniques to provide high performance, reliable and affordable solutions. They deliver:

#### **Advanced Techniques**

Adapts state-of-the-art ASIC (Application Specific Integrated Circuit) technique especially designed for multiport serial communications, which greatly reduces the number of traditional ICs and drastically lower the repair rate. Manufactured with ASIC, SMD and high quality control, the return-for-repair rate is lower than 0.5%.

#### **Compact Board Size**

ASIC and SMD design minimize the board size into half-size to suit virtually any PC cabinet. Suitable for embedded applications.

#### **Easy Installation**

ASIC eliminates the I/O address switches or IRQ jumpers for ISA products, all configurations are done by software and hence ease the installation procedure. User-friendly installation and configuration program and documentation for quick system setup.

#### **No Data Loss**

Uses the smart I/O controller (16C550C or compatible), which has on-chip hardware flow control to guarantee no data loss, even at higher speed transmission.

#### **Smart RS-485 Communication**

ADDC (Automatic Data Direction Control) intelligence makes RS-485 half-duplex control as easy as normal RS-232 control.

#### **Industrial-strength Reliability**

Optical isolation and surge protection, and even over-current protection are supported whenever it requires to be resistant to the interference or surge from the harsh industrial environment. Built-in termination resistors free you from impedance matching hassle.



#### **Easy for Developing Applications**

Serial comm. developing tools, PComm Pro/Lite for Windows 2000, Windows NT/95/98 and API-232 for DOS/Windows 3.x, are widely available. In addition to easy-to-use API, helpful debugging utilities, such as data scope, terminal emulator, monitor and diagnostics are included. Minimize the time to market.



#### **High Availability and Compatibility**

Available in PCI, ISA, CompactPCI or PCMCIA bus interface. Supports almost all popular operating systems such as Windows 2000 Windows NT, Windows 95/98, Windows 3.x, DOS, SCO UNIX, UNIX SVR4, Linux, Solaris x86, OS/2, QNX, etc. Provide wide choices for SI or VAR on different fields.

# ***Multiport Async Board***

**M**oxa multiport async board products consist of five multiport families: ***Intellto, Smartto, Industto, Transio and PCMCIA***. Each multiport family possesses unique capabilities and functionality to meet your various demands for applications.

## ***Intellto Multiport Family***

For the large-scale system, system performance and scalability are critical. On-board CPU and large memory are used to add data processing intelligence to the multiport product to share the load off the host system. To provide port expandability, dual CPU architecture is introduced to make it feasible and reliable. Features and benefits are:

- High performance with low system overhead
- Port expandable to grow with system
- Distance extendible with cluster layout
- High availability in major OS

## ***Smartto Multiport Family***

The Smartto family aims at communication applications that are for smaller systems with merely 4 or 8 communication ports but requiring good reliability and ease of use, for example, embedded multiport application, PC-based machine, small Internet Server, and so on. Features and benefits are:

- No data loss at high speed
- High reliability with less system down time
- Compact size to fit any PC cabinet
- Easy installation and maintenance
- COM compatibility

## ***Industto Multiport Family***

To provide excellent solutions for industrial automation and data acquisition applications, Industto products are highly reliable and robust to meet the harsh and severe industrial environment. Features and benefits are:

- High reliability with less system down time
- ADDC smartness for easy RS-485 programming
- Compact size to fit any PC cabinet
- COM compatibility

## ***Transio Family***

Transio Family provides interface conversion between RS-232 and RS-422/485 or additional optical isolation protection and surge protection. Features and benefits are:

- High reliability with isolation/surge/over-current protection
- ADDC smartness for easy RS-485 programming
- Flexible layout

## ***PCMCIA Communication Card***

To provide mobile computing solutions, PCMCIA products are perfect for Notebooks, Laptops, or any portable PCs with PCMCIA Type II slot. Features and benefits are:

- No data loss with hardware flow control
- COM compatible
- Turn Notebook into Data Scope or Data Logger

# Intellio C320Turbo Multiport Controller

Flexible Serial I/O Solution for Ever-expanding System

## Overview

The Intellio C320Turbo series is an ideal multiport serial controller for PC, particularly designed for flexibility. It allows users to begin with a small-range system with 8 ports and expand up to 128 ports depending on the business growth. In addition, users have various options for control boards (PCI or ISA), connection modules (rackmount or desktop), connector type (RJ45 or DB25), and COM port interface (RS-232 or RS-422). All combinations of options are possible in one system. Besides, with high speed I/O trunk design between control board and connection module, the connection module can be located as far as 100M away. This ensures that PC can control remote multiple serial devices with least cost on cabling layout (only one cable is needed).



**C320Turbo/PCI**



**C320Turbo**

## Features

- Can control 8 to 128 serial devices, good for expandability
- Flexible connection module selection: rackmount (19") or desktop
- Can control RS-232 devices 100M away without using repeater
- Simplify the cabling layout when connecting remote devices
- Dual processors architecture to raise I/O performance
- Display panel on connection module shows working status of each port
- Compatible to Windows COM port and UNIX tty port
- Support most popular OS: Windows 2000, Windows NT, Windows 95/98, SCO UNIX, UNIX SVR4.2, Linux, QNX, OS/2, Solaris x86

## Applications

- Remote access services (RAS)
- Internet/Intranet server
- Telecommunication
- Remote data acquisition
- Industrial automation

# Intellio C320Turbo Multiport Controller

Flexible Serial I/O Solution for Ever-expanding System

## Specification

### Control Board

Max. no. of port	32 per board (max. 4 boards, 128 ports per system)
Bus interface	PCI (Spec. 2.1) or ISA
Processor	TMS320BC52 RISC processor
Memory	512KB
IRQ	2, 3, 4, 5, 7, 10, 11, 12, 15
Power requirement	C320Turbo/PCI: 0.925A(+5V) C320Turbo: 0.6A(+5V)
Operating temp.	0 ~ 55°C
OS supported	C320Turbo/PCI: Windows 2000, Windows NT, Windows 95/98, SCO UNIX, UNIX SVR4.2 C320Turbo: Windows 2000, Windows NT, Windows 95/98, Windows 3.x, DOS, SCO UNIX, SCO XENIX, UNIX SVR4.2, Linux, QNX, OS/2, Solaris x86

### Basic Module (Rackmount)

Serial interface	8 or 16 RS-232 (RJ45)
Speed	50 ~ 460.8K bps
Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
Processor	TMS320BC52 RISC processor
I/O controller	16C550C or compatible, each with 32 byte Tx/Rx FIFO
LED Display	COM port activity LEDs and diagnostic displays

### Extensive Module (Rackmount)

Serial interface	8 or 16 RS-232 (RJ45)
Speed	50 ~ 460.8K bps
Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
I/O controller	16C550C or compatible, each with 32 byte Tx/Rx FIFO

### CPU Module (Desktop)

Processor	TMS320BC52 RISC processor
LED Display	COM port activity LEDs and diagnostic displays

### UART Module (Desktop)

Serial interface	8 RS-232 or RS-422
Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND
Optical isolation	Optional

## Ordering Information

### Base Components

C32010T/PCI	<ul style="list-style-type: none"><li>• PCI bus, control board</li><li>• Windows NT, Windows 95/98, SCO UNIX, SVR4.2 drivers and manual (Linux, QNX OS/2 drivers by request)</li><li>• MOXA PComm Lite serial comm developing tool</li></ul>
C32010T	<ul style="list-style-type: none"><li>• ISA bus, control board</li><li>• Windows NT, Windows 95/98, SCO UNIX, SVR4.2, Solaris x86 drivers and manual (Linux, QNX OS/2 drivers by request)</li><li>• MOXA PComm Lite serial comm developing tool</li></ul>
C32020T	<ul style="list-style-type: none"><li>• Link cable, 2m DB25 to DB25</li></ul>

**Basic Module (must choose one per C32010T/PCI or C32010T)**

### Rackmount Connection Module

C32080T	8 ports RS-232 module RJ45 connectors, rackmount kit included
C32081T	16 ports RS-232 module, RJ45 connectors, rackmount kit included

Port	4	8	16	24	32
Interface	232	422	485		

## Intellio C320Turbo Components

### Extensive Module (optional, max. no. of ports of Extensive and Basic Modules is 32)

C32082T	8 ports RS-232 module, RJ45 connectors, DB37 link cable and rackmount kit included
C32083T	16 ports RS-232 module, RJ45 connectors, DB37 link cable and rackmount kit included

### Desktop Connection Module

#### CPU Module (must choose)

C32030T	CPU module
---------	------------

#### UART Module (At least one is needed)

C32045T	8 ports RS-232 extending module with female DB25 connectors
C32047T	8 ports RS-232 extending module with male DB25 connectors

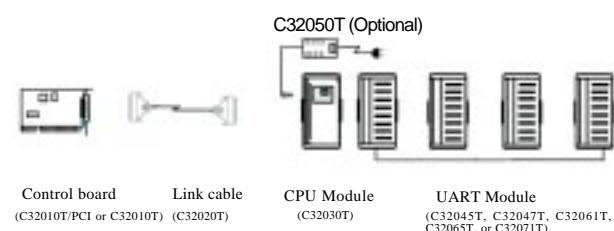
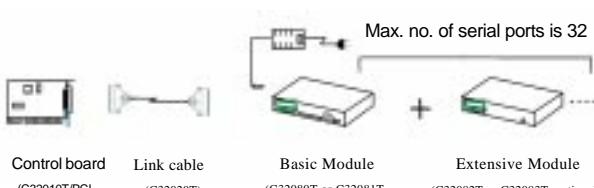
C32061T	8 ports RS-232 extending module with female DB25 connectors
C32065T	8 ports RS-422 extending module with optical isolation, female DB25 connectors
C32071T	8 ports RS-422 extending module with surge isolation, female DB25 connectors

### Optional Accessories

C32050T	Long range extension kit when module is farther than 2m from host, 90 ~ 240V AC auto-selective power adapter and a 10 pin link cable
CN20030	150cm RJ45 to female DB25 RS-232 (DCE) cable
CN20040	150cm RJ45 to male DB25 RS-232 (DTE) cable

	C32010T/PCI	C32010T	C32030T	C32045T	C32047T	C32061T	C32065T	C32071T	C32080T	C32081T	C32082T	C32083T
Dimension (mm)	120 X 90 X 15	158 X 107 X 15	247 X 108 X 35	as left	as left	as left	as left	as left	270 x 160 x 445	as left	as left	as left
Weight (g)	90	120	425	500	485	488	525	525	1020	1120	920	1000
Power Requirement	0.925A(+5V) 0.12A(+12V) 0.15A(-12V)	0.6A(+5V)	0.5A(+5V)	1.1A(+5V) 0.12A(+12V) 0.15A(-12V)	1.1A(+5A) 0.15A(+12V) 0.1A(-12V)	0.3A(+5V)	0.63A(+5V)	0.3A(+5V) 0.1A(+12V) 0.05A(-12V)	0.6A(+5V) 0.12A(+12V) 0.15A(-12V)	0.7A(+5V) 0.24A(+12V) 0.3A(-12V)	0.1A(+5V) 0.12A(+12V) 0.15A(-12V)	0.2A(+5V) 0.24A(+12V) 0.3A(-12V)

### Intellio C320Turbo Rackmount and Desktop Components



### Intellio C320Turbo Rackmount Components

### Intellio C320Turbo Desktop Components

# Intellio C218Turbo Series

*Highest Performance Serial I/O Solution*

## Overview

The Intellio C218Turbo series is specifically designed for small while performance demanding application. With the state-of-the-art ASIC (Application Specific Integrated Circuit), on-board RISC processor (TI TMS320) and large I/O buffer (512KB), C218Turbo handles serial I/O at world class performance: sustained 230K bps throughput on all eight ports simultaneously and only occupy 5 % of host processor time (\*), freeing more host resource for critical tasks. This feature is specifically applicable to fast response demanding application on industrial control and high speed telecommunication applications.

(\*) The benchmark is made by using Equinox ComTach program under Windows NT 4.0, Pentium-233 platform.



**C218Turbo/PCI**



**C218Turbo**

## Features

- High speed communication port (max. 921.6K bps)
- High performance (sustained 230K bps through on all 8 ports simultaneously)
- Low host processor overhead
- Compact size design, good for embedded system
- Large I/O buffer (64KB per port, totally 512KB)
- Low repair rate with state-of-the-art ASIC design
- High availability with optical isolation or surge protection (both 2KV, optional)

## Applications

- Critical industrial control
- Response demanding monitoring system
- Embedded industrial machine
- Small Internet/Intranet communication server
- High speed modem/ISDN connectivity
- PC-based router

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

Processor	TMS320BC203-57 RISC CPU
I/O controller	16C550C or compatible x 8
Memory	512KB

### Interface

Bus interface	PCI ver. 2.1(32 bit) or ISA(16 bit)
Serial interface	RS-232, RS-422/485
No. of port	8

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	32 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	PCI: Assigned by BIOS ISA: 2(9), 3, 4, 5, 7, 10, 11(Default), 12, 15

### OS supported

C218Turbo/PCI	Windows 2000, Windows NT, Windows 95/98, DOS, AT&T UNIX SVR 4.2, MITUX SVR 4.2, UnixWare SVR 4.2, UnixWare 7 SVR 5, SCO UNIX/SCO Open Server, SCO XENIX, Linux 2.0.x (Intel x86), Linux 2.0.x (Alpha), Linux 2.2.x (Intel x86), Linux 2.2.x (Alpha)
C218Turbo	

### Power and Environment

#### Power requirement:

C218Turbo/PCI:	190mA max.(+5V), 110mA max. (+12V), 160mA max.(-12V)
C218Turbo:	155mA max.(+5V), 110mA max. (+12V), 160mA max.(-12V)

#### Operating temp

### Dimension

C218Turbo/PCI: 180mm x 97mm

C218Turbo: 170mm x 107mm

Surge protection 25KV ESD, 2KV EFT (Optional)

## Ordering Information

C218Turbo/PCI	<ul style="list-style-type: none"> <li>PCI bus, 8 ports intelligent async board</li> <li>Windows NT, Windows 95/98, SCO UNIX, UNIX SVR4.2, Linux drivers and manual</li> </ul>
C218Turbo	<ul style="list-style-type: none"> <li>ISA bus, 8 ports intelligent async board</li> <li>Windows NT, Windows 95/98 and DOS, SCO UNIX, UNIX SVR4.2, Linux (by request) drivers and manual</li> </ul>
All items include	MOXA PComm Lite serial comm developing tool

### Optional Connecters

Opt8A	Opt8B
Opt8C	Opt8D
Opt8J	Opt8S
Opt8F	Opt8Z

For detailed information, please refer to page 35~36

“The Connection Options for Intellio C218Turbo and Smartio C168 Series”

# Intellio CP-204J

4 Ports RS-232 Intelligent Multiport board for Embedded System

## Overview

The Intellio CP-204J is specifically designed for embedded systems, PC-based machines and any other space-critical applications. It is a superior cabling space saver. Unlike the fan-out cable or external connection box solutions that most other products provide, CP-204J, with the built-in RJ45 bracket design, saves not only the cable layout space but also the cost. Hence, it is suitable for applications such as embedded systems, POS, Kiosk, ATM machines and other PC-based embedded systems.

In addition, the other outstanding features like the state-of-the-art ASIC design, on-board RISC processor (TI TMS320) and large I/O buffer (512KB) make CP-204J utilize minimal system resources and thus suitable for fast response demanding transaction applications and high reliability requiring 24-hour service applications.

## Features

- On-board RISC-based CPU, low host processor overhead and low system load
- High reliability of low repair rate with state-of-the-art ASIC design
- Built-in RJ45 connectors on the bracket to deliver layout flexibility and save cabling space and cost.
- Compact board size(half-size) design, perfect for PC-based embedded systems
- On-chip hardware flow control and large I/O buffer, no data loss
- ANY IRQ, ANY address, no resource conflict headache
- No switch no jumper, easy to control (by software)



**CP-204J**

## Applications

- PC-based POS
- PC-based postal machine
- PC-based ATM machine
- PC-based lottery machine
- PC-based kiosk
- Embedded industrial machine
- Other embedded system application

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

Processor	TMS320C203 RISC processor
I/O controller	16C550C or compatible x 4, each with 32 byte Tx/Rx FIFO
Memory	512KB
Connector type	RJ45

### Interface

Bus interface	PCI ver. 2.1(32bit)
Serial interface	RS-232
No. of port	4

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	16 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	Assigned by BIOS

### OS supported

CP-204J	Windows 2000, Windows NT, Windows 95/98
---------	---

### Power and Environment

Power requirement	190mA(+5V), 90mA(+12V), 110mA(-12V)
Operating temp.	0 ~ 55°C
Dimension	160mm x 95mm x 16mm

## Ordering Information

CP-204J

- PCI bus, 4 ports intelligent RS-232 board
- Windows NT, Windows 95/98 drivers and manual
- MOXA PComm Lite serial comm developing tool

### Optional Accessories

CN20030	150cm RJ45 to female DB25 RS-232 (DCE) cable
CN20040	150cm RJ45 to male DB25 RS-232 (DTE) cable

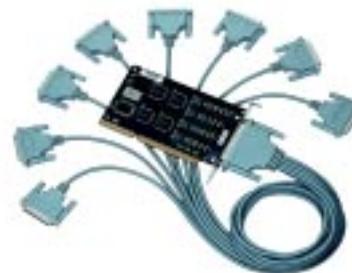
# Smartio C168H Series

Easy-to-use 8 Ports Serial Board

## Overview

The Smartio C168H series is designed for people who look for easy-to-use eight ports serial board. Just plugging the C168H series board to a PCI or ISA slot, all configuration tasks will be done by software, eliminating the need to adjust I/O address and IRQ hardware switch or jumper.

What more, users can configure each port of the C168H board to ANY IRQ, ANY address, relieving the headache of resource conflict. Surge protection and optical isolation (both 2KV) are available as options for reliability.



**C168H/PCI**



**C168HS**



**C168H**

## Features

- ANY IRQ, ANY address, no conflict headache
- No switch no jumper, easy to control (by software)
- No data loss
- Support high speed I/O controller (16C550C or compatible)
- ASIC design in half-size

## Applications

- PC-based point of sale register
- PC-based postal machine
- PC-based kiosk
- PC-based lottery machine
- Other serial device control

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	16C550C or compatible x 8
----------------	---------------------------

### Interface

Bus interface	PCI ver. 2.1(32 bit) or ISA(16 bit)
Serial interface	RS-232, RS-422/485
No. of port	8

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	32 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	PCI: Assigned by BIOS ISA: 2, 3, 4, 5, 7, 10(Default), 11, 12, 15
I/O address	PCI: Assigned by BIOS ISA: 0x0000 ~ 0xFFFF Default: 0x180

### OS supported

C168H/PCI	Windows 2000, Windows NT, Windows 95/98, DOS, Linux 2.0.x (Intel x86), Linux 2.0.x (Alpha), Linux 2.2.x (Intel x86), Linux 2.2.x (Alpha)
C168H	Windows 2000, Windows NT, Windows 95/98, DOS, AT&T UNIX SVR 4.2, MITUX SVR 4.2, UnixWare SVR 4.2, SCO Open Server/SCO UNIX, Linux 2.0.x (Intel x86), Linux 2.2.x (Intel x86), Linux 2.2.x (Alpha)
C168HS	Windows 2000, Windows NT, Windows 95/98, DOS, AT&T UNIX SVR 4.2, MITUX SVR 4.2, UnixWare SVR 4.2, SCO Open Server/SCO UNIX, Linux 2.0.x (Intel x86), Linux 2.2.x (Intel x86), Linux 2.2.x (Alpha)

### Power and Environment

Power requirement	180mA max. (+5V), 110mA max. (+12V), 160mA max. (-12V)
Operating temp.	0 ~ 55°C

### Dimension

C168H/PCI: 157mm x 93mm

C168H: 123mm x 100mm

C168HS: 123mm x 100mm

Surge protection 25KV ESD, 2KV EFT (Optional)

## Ordering Information

C168H/PCI	<ul style="list-style-type: none"> <li>• PCI bus, 8 ports smart async board</li> <li>• Windows NT, Windows 95 drivers and manual</li> </ul>
C168H	<ul style="list-style-type: none"> <li>• ISA bus, 8 ports smart async board</li> <li>• Windows NT, Windows 95/98, DOS, SCO UNIX, UNIX SVR4.2 drivers and manual</li> </ul>
C168HS	<ul style="list-style-type: none"> <li>• ISA bus, 8 ports smart async board with surge protection</li> <li>• Windows NT, Windows 95/98, DOS, SCO UNIX, UNIX SVR4.2 drivers and manual</li> </ul>
All items include	<ul style="list-style-type: none"> <li>MOXA PComm Lite serial comm developing tool</li> </ul>

### Optional Connecters

Opt8A	Opt8B
Opt8C	Opt8D
Opt8J	Opt8S
Opt8F	Opt8Z

For detailed information, please refer to page 35~36

*“The Connection Options for Intellio C218Turbo and Smartio C168 Series”*

# Smartio C104H Series

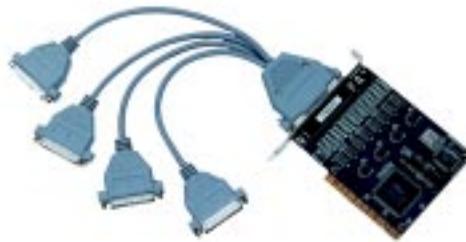
Easy-to-use 4 Ports Serial Board

## Overview

The Smartio C104H series is designed for people who look for easy-to-use four ports serial board. Just plugging the C104H series board to a PCI or ISA slot, all configuration tasks will be done by software, eliminating the need to adjust I/O address and IRQ hardware switch or jumper. C104H is an economical multiport solution when users need to control several RS-232 devices which cannot be accomplished by PC COM1 and COM2.



**C104HS/PCI**



**C104H/PCI**



**C104HS**



**C104H**

## Features

- ANY IRQ, ANY address, no conflict headache
- No switch no jumper, easy to control (by software)
- No data loss
- Support high speed I/O controller (16C550C)
- ASIC design in half-size

## Applications

- PC-based point of sale register
- PC-based postal machine
- PC-based kiosk
- PC-based lottery machine
- Other serial device control

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	16C550C or compatible x 4
Connector type	DB37 to male DB25 or DB9

### Interface

Bus interface	PCI ver. 2.1(32 bit) or ISA(16 bit)
Serial interface	RS-232
No. of port	4
Signals	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	16 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	PCI: Assigned by BIOS ISA: 2, (9), 3, 4, 5, 7, 10(Default), 11, 12, 15
I/O address	PCI: Assigned by BIOS ISA: 0x0000~0xFFFF Default: 0x180

### OS supported

C104H/PCI	Windows 2000, Windows NT, Windows 95/98, DOS, Linux 2.0.x (Intel x86), Linux 2.0.x(Alpha), Linux 2.2.x (Intel x86), Linux 2.2.x (Alpha)
C104HS/PCI	Windows 2000, Windows NT, Windows 95/98, DOS, Linux 2.0.x (Intel x86), Linux 2.2.x(Alpha), Linux 2.2.x, Linux 2.2.x (Alpha)
C104H	Windows 2000, Windows NT, Windows 95/98, DOS, Linux 2.0.x (Intel x86), Linux 2.2.x(Alpha), Linux 2.2.x, Linux 2.2.x (Alpha)
C104HS	Windows 2000, Windows NT, Windows 95/98, DOS, Linux 2.0.x (Intel x86), Linux 2.2.x(Alpha), Linux 2.2.x, Linux 2.2.x (Alpha)

## Power and Environment

Power requirement	
C104H/PCI:	86mA max. (+5V), 210mA max. (+12V), 266mA max. (-12V)
C104HS/PCI:	110mA max. (+5V), 230mA max. (+12V), 320mA max. (-12V)
C104H:	90mA max. (+5V), 55mA max. (+12V), 75mA max. (-12V)
C104HS:	90mA max. (+5V), 55mA max. (+12V), 75mA max. (-12V)
Operating temp.	0 ~ 55°C
Dimension	
C104H/PCI:	120mm x 100mm
C104HS/PCI:	120mm x 100mm
C104H:	157mm x 83mm
C104HS:	157mm x 83mm
Surge protection	25KV ESD (Optional)

## Ordering Information

C104H/PCI	PCI bus, 4 ports RS-232 Board
C104HS/PCI	PCI bus, 4 ports RS-232 Board with surge protection
C104H	ISA bus, 4 ports RS-232 Board
C104HS	ISA bus, 4 ports RS-232 Board with surge protection
All items include	<ul style="list-style-type: none"> <li>Cable (DB37 to Male DB25 x 4 connectors)</li> <li>Windows NT, Windows 95/98 drivers and manual</li> <li>MOXA PComm Lite serial comm developing tool</li> </ul>

# Smartio CI-104J Series

Easy-to-use 4 Ports RS-232 Board for Embedded System

## Overview

The Smartio CI-104J is designed for people who look for easy-to-use 4 ports serial board. The differentiation compared with C104H series is that it is specifically designed for embedded systems, PC-based machines and any other space-critical applications. The CI-104J is a superior cabling space saver, which feature the built-in RJ45 bracket design to saves the cable layout space and the cost. Hence, it is suitable for applications such as embedded systems, POS, Kiosk, ATM machines and other PC-based embedded systems.

In addition, the other outstanding features like the state-of-the-art ASIC design and on-chip hardware flow control guarantee low repair rate and fully data integrity and thus make CI-104J highly reliable and suitable for 24-hour service and transaction applications.



CI-104JS



CI-104J

## Features

- Built-in RJ45 connectors to deliver layout flexibility and save cabling space and cost
- ASIC design in half-size, perfect for PC-based embedded systems
- High reliability of low repair rate with state-of-the-art ASIC design
- ANY IRQ, ANY address, no resource conflict headache
- No switch no jumper, easy to control (by software)
- On-chip hardware flow control, no data loss
- High availability with surge protection option (max. 2KV)

## Applications

- PC-based POS
- Critical industrial control
- PC-based postal machine
- Embedded industrial machine
- PC-based kiosk
- Other embedded system application
- PC-based lottery machine

Port	2	4	8	16	32
Interface	232	422	485		



## Specification

### Hardware

I/O controller	16C550C or compatible x 4, each Tx/Rx
Connector type	FIFO with 16 bytes
	DB37 to male DB25 or DB9

### Interface

Bus interface	ISA(16 bit)
Serial interface	RS-232
No. of port	

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	16 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	2(9), 3, 4, 5, 7, 10(Default), 11, 12, 15
I/O address	0x0000 ~ 0xFFFF Default: 0x180

### OS supported

CI-104J	Windows 2000, Windows NT,
CI-104JS	Windows 95/98, Windows 3.x, DOS

### Power and Environment

Power requirement	
CI-104J:	79mA max.(-12V), 55mA max.(+12V), 100mA max.(+5V)
CI-104JS:	83mA max.(-12V), 57mA max.(+12V), 100mA max.(+5V)
Operating temp.	0 ~ 55°C
Dimension	157mm x 83mm
Surge protection	25KV ESD (Optional)



## Ordering Information

CI-104J	<ul style="list-style-type: none"> <li>• ISA bus, 4 ports RS-232 board</li> <li>• Windows NT, Windows 95/98, DOS, Windows 3.x drivers and manual</li> </ul>
CI-104JS	<ul style="list-style-type: none"> <li>• ISA bus, 4 ports RS-232 board with surge protection</li> <li>• Windows NT, Windows 95/98, DOS, Windows 3.x drivers and manual</li> </ul>
All items include	MOXA PComm Lite serial comm developing tool

### Optional Accessories

CN20030	150cm RJ45 to female DB25 RS-232 (DCE) cable
CN20040	150cm RJ45 to male DB25 RS-232 (DTE) cable

# Connection Options for Intellio C218Turbo and Smartio C168 Series

The followings are connection options available for Intellio C218Turbo and Smartio C168 Series 8 ports board.

Choose one connection option for each board.



## Opt8A

8 ports RS-232 connection box with female DB25 connectors

- Signals: RxD(2), TxD(3), CTS(4), RTS(5), DTR(6), GND(7), DCD(8), DSR(20) TxD, RxD monitoring LEDs each port
- 150cm DB62 to DB62 connection cable
- Dimension: 247mm x 108mm x 35mm



Opt8A



## Opt8B

8 ports RS-232 connection box with male DB25 connectors

- Signals: TxD(2), RxD(3), RTS(4), CTS(5), DTR(20), GND(7), DCD(8), DSR(6)
- TxD, RxD monitoring LEDs each port
- 150cm DB62 to DB62 connection cable
- Dimension: 247mm x 108mm x 35mm



Opt8B



## Opt8C

8 ports RS-232 octopus cable with male DB25 connectors

- Signals: TxD(2), RxD(3), RTS(4), CTS(5), DTR(20), GND(7), DCD(8), DSR(6)
- Cable length 100cm



Opt8C



## Opt8D

8 ports RS-232 octopus cable with male DB9 connectors

- Signals: DCD(1), RxD(2), TxD(3), DTR(4), GND(5), DSR(6), RTS(7), CTS(8)
- Cable length 100cm



Opt8D

# Connection Options for Intellio C218Turbo and Smartio C168 Series

The followings are connection options available for Intellio C218Turbo and Smartio C168 Series 8 ports board.

Choose one connection option for each board.



## Opt8F

8 ports RS-422 connection box with female DB25 connectors and optical isolation

- Signals: TxD+(3)/-(16), RxD+(2)/-(14), GND(7)
- TxD, RxD monitoring LEDs each port
- 150cm DB62 to DB62 connection cable
- Power adapter 110V AC or 220V AC
- Optical isolation: 500V
- Dimension: 247mm x 108mm x 35mm
- Power requirement: 0.8A max. (+5V)



Opt8F



## Opt8Z

8 ports RS-422 connection box with female DB25 connectors

- Signals: TxD+(3)/-(16), RxD+(2)/-(14), GND(7)
- TxD, RxD monitoring LEDs each port
- 150cm DB62 to DB62 connection cable
- Power adapter 100V AC, 110V AC or 220V AC
- Dimension: 247mm x 108mm x 35mm
- Power requirement: 0.8A max. (+5V)



Opt8Z



## Opt8J

8 ports RS-422/485 connection box with female DB25 connectors

- Signals: RS-422: TxD+(3)/-(16), RxD+(2)/-(14), GND(7), RTS+(5)/-(13), CTS+(4)/-(19)  
RS-485: TxD+(3)/-(16), GND(7)
- TxD, RxD monitoring LEDs each port
- 150cm DB62 to DB62 connection cable
- Power adapter 100V AC, 110V AC or 220V AC
- Dimension: 247mm x 108mm x 35mm
- Power requirement: 1.2A max. (+5V)



Opt8J



## Opt8S

8 ports RS-232 octopus cable with female DB25 connectors and surge protection

- Signals: RxD(2), TxD(3), CTS(4), RTS(5), DTR(6), GND(7), DCD(8), DSR(20)
- TxD, RxD monitoring LEDs each port
- 150cm DB62 to DB62 connection cable
- Dimension: 247mm x 108mm x 35mm
- Surge protection voltage: 25KV ESD



Opt8S

# Industio CT-114I

*3 in 1 Multiport Serial Board for CompactPCI*

## Overview

The Industio CT-114I is a world leading multiport serial board for 32-bit CompactPCI system. The CT-114I supports all three serial interfaces, RS-232 and RS-422/485, in one board. With this versatile design, the CT-114I can control different kinds of serial devices such as modems, CNCs and other industrial machines without the need to use interface converters.

The CT-114I is designed to the CompactPCI standard in Eurocard 3U size. The CompactPCI standard is electrically identical to the PCI bus but has been enhanced to support more rugged industrial environments.

## Features

- Support all three serial interfaces in one board (2 ports for RS-232, 2 ports for RS-232 or RS-422/485)
- Support Automatic Data Direction Control (ADDC) intelligence to simplify the RS-485 software programing
- Built-in termination resistors already installed one-board, no headache for impedance matching
- ASIC design, low failure rate
- On-chip hardware flow control, no data loss
- Support 2-wire RS-485 half-duplex operation
- TxD/RxD LEDs for easy monitoring
- Compatible with PC standard COM ports
- Support optical isolation, max. 2KV (RS-422/485)



**CT-114I**

## Applications

- Industrial automation
- Test & measurement system
- Medical equipment data collection
- Environment monitoring system

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	16C550C or compatible x 4
Connector type	DB44 to male DB9

### Interface

Bus interface	CompactPCI ver. 2.1(32 bit)
Serial interface	RS-232, RS-422/485
No. of port	2 (RS-232), 2 (RS-232 or RS-422/485)
Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND RS-485: Data+/-, GND

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	16 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	Assigned by BIOS
I/O address	Assigned by BIOS

### OS supported

CT-114I	Windows 2000, Windows NT, Windows 95/98, DOS
---------	--

### Power and Environment

Power requirement	700mA max.(+5V), 100mA max. (+12V), 120mA max. (-12V)
Operating temp.	0 ~ 55°C
Dimension	100mmx160mm(3U)
Optical isolation	RS-232: N/A RS-422: 2KV RS-485: 2KV

## Ordering Information

CT-114I	<ul style="list-style-type: none"> <li>• 4 ports RS-232, RS-422/485 board</li> <li>• Windows NT and Windows 95/98 drivers and manual</li> <li>• Cable (DB44 to DB9 x 4 connectors)</li> <li>• MOXA PComm Lite serial comm developing tool</li> </ul>
---------	--

# Industio CP-114 Series

4 Ports 3 in 1 Industrial Communication Board for PCI

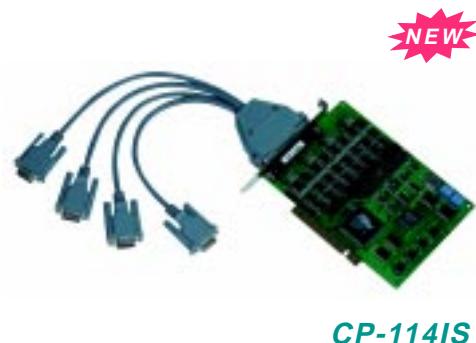
## Overview

The Industio CP-114 series is designed for RS-232 and RS-422/485 industrial communication. It supports 4 switch-selectable, independent RS-232 and RS-422/485 ports. Each RS-422/485 port can control up to 32 devices in a multidrop environment.

Applications can easily manage the data transmitting and receiving of the half-duplex RS-485 port without extra code via Automatic Data Direction Control (ADDC) intelligence. In addition, on-chip hardware flow control and built-in termination resistors guarantee data integrity. Optional optical isolation and surge protection are also available to deliver high reliability. All above make CP-114 series suitable for harsh industrial applications.

## Features

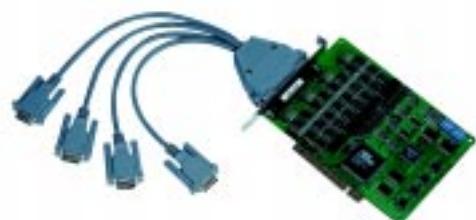
- Support all three serial interfaces in one board (2 ports for RS-232, 2 ports for RS-232 or RS-422/485)
- Support Automatic Data Direction Control (ADDC) intelligence to simplify the RS-485 software programming
- Built-in termination resistors, no headache for impedance matching
- ASIC design in half size
- On-chip hardware flow control, no data loss
- Optical surge protection, max. 25KV ESD (CP-114S, CP-114IS); optical isolation, max. 2KV (CP-114I, CP-114IS)



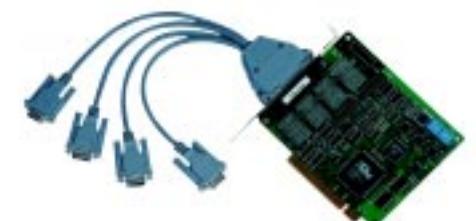
CP-114IS



CP-114S



CP-114I



CP-114

## Applications

- Multipoint data acquisition
- Industrial control
- Factory automation
- Embedded industrial machine
- Remote serial device control
- SCADA

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	16C550C or compatible x 4, each with 16 bytes Tx/Rx FIFO
Connector type	Male DB9

### Interface

Bus interface	PCI ver. 2.1(32bit)
Serial interface	RS-232,RS-422/485
No. of port	4
Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND RS-485: Data+/-, GND
RS-485 data control	Auto (Automatic Data Direction Control) or by RTS
Built-in termination resistor	RS-422: 120 Ohm RS-485: 120 Ohm, jumper enable/disable

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	16 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	Assigned by BIOS
I/O address	Assigned by BIOS

### OS supported

CP-114	
CP-114I	Windows 2000, Windows NT,
CP-114S	Windows 95/98, DOS
CP-114IS	

### Power and Environment

Power requirement	
CP-114 :	720mA (+5V), 43mA (+12V), 31mA (-12V)
CP-114S:	735mA (+5V), 44mA (+12V), 33mA (-12V)
Operating temp.	0 ~ 55°C
Dimension	CP-114,CP-114S : 135mmx110mm CP-114I,CP-114IS: 160mm x 120mm
Surge Protection	CP-114S/CP-114IS: 25KV ESD
Isolation Protection	CP-114I/CP-114IS: 2KV

### Ordering Information

CP-114	4 ports RS-232, RS-422/485 board (PCI), DB9 connectors
CP-114S	4 ports RS-232, RS-422/485 board (PCI) with surge protection (25KV ESD), DB9 connectors
CP-114I	4 ports RS-232, RS-422/485 board with optical isolation (2KV), DB9 connectors
CP-114IS	4 ports RS-232, RS-422/485 board with optical isolation (2KV) and surge protection (25KV ESD ), DB9 connectors
All items include	<ul style="list-style-type: none"> <li>Windows NT, 95/98 and DOS drivers and manual</li> <li>MOXA PComm Lite serial comm developing tool</li> </ul>

# Industio CI-134 Series

4 Ports RS-422/485 Industrial Communication Board

## Overview

The Industio CI-134 series is designed for RS-422/485 industrial communication. It supports 4 independent RS-422/485 ports which can control up to 128 devices in a multidrop environment.

To ease the 2-wire RS-485 half-duplex control, an Automatic Data Direction Control intelligence is built on each CI-134 board, eliminating the need of software interference. Hence, the Windows applications can manage the RS-485 port without extra code to control the half-duplex protocol.

To meet the demand of high reliability in industrial environment, an optical isolation option (2KV) and surge protection (25KV ESD) are also available in this series.



CI-134IS



CI-134I



CI-134

## Features

- Support Automatic Data Direction Control (ADDC), intelligence to simplify the RS-485 software programming
- Built-in termination resistors already installed on-board, no headache for impedance matching
- RS-485 data control: auto or by RTS
- ASIC design in half-size
- Support surge protection, max. 25KV ESD (CI-134IS)
- Support optical isolation, max. 2KV (CI-134I, CI-134IS)

## Applications

- Multipoint data acquisition
- Factory automation
- Remote serial device control
- Industrial control
- Embedded industrial machine
- SCADA

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	16C550C or compatible x 4
Connector type	DB37 to male DB9

### Interface

Bus interface	ISA(16 bit)
Serial interface	RS-422/485
No. of port	4
Signals	RS-422:TxD+/-,RxD+/-,RTS+/-, CTS+/-, GND RS-485:Data+/-, GND
Built-in termination resistor	RS-422: 120 Ohm RS-485: 120 Ohm, jumper enable/ disable

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	16 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	2(9), 3, 4, 5, 7, 10(Default), 11, 12, 15
I/O address	0x0000 ~ 0xFFFF Default:0x180

### OS supported

CI-134	Windows 2000, Windows NT,
CI-134I	Windows 95/98, Windows 3.x, DOS
CI-134IS	

### Power and Environment

Power requirement	
CI-134 :	450mA max.(+5V)
CI-134I :	610mA max.(+5V)
CI-134IS :	723mA max.(+5V)
Operating temp.	0 ~ 55°C

### Dimension

CI-134 : 160mm x 85mm

CI-134I : 180mm x 110mm

CI-134IS : 180mm x 110mm

Surge protection 25KV ESD, (Optional)

Optical isolation 2KV (Optional)

## Ordering Information

CI-134 4 ports RS-422/485 board

CI-134I 4 ports RS-422/485 board with  
optical isolation (2KV)

CI-134IS 4 ports RS-422/485 board with  
optical isolation (2KV) and surge  
protection (25KV ESD)

### All items include

- Cable (DB37 to male DB9x 4 male  
connectors)
- Windows NT, Windows 95/98,  
Windows 3.x and DOS drivers and  
manual
- MOXA PComm Lite serial comm  
developing tool

# Industio CP-132 Series

2 Ports RS-422/485 Industrial Communication Board for PCI



## Overview

The Industio CP-132 series is designed for RS-422/485 industrial communication. It supports 2 independent RS-422 or RS-485 ports, and each port can control up to 32 devices in a multidrop environment.

Applications can easily manage the data transmitting and receiving of the half-duplex RS-485 port without extra code via Automatic Data Direction Control (ADDC) intelligence. In addition, on-chip hardware flow control and built-in termination resistors guarantee data integrity. Optional optical isolation and surge protection are also available to deliver high reliability. All above make CP-132 series suitable for harsh industrial applications.



## Features

- Support Automatic Data Direction Control (ADDC) intelligence to simplify the RS-485 software programming
- Built-in termination resistors, no headache for impedance matching
- Compact board size (half-size), suitable for any PC cabinet
- On-chip hardware flow control, no data loss
- Supports surge protection, max. 25KV ESD (CP-132S, CP-132IS)
- Supports optical isolation, max. 2KV (CP-132I, CP-132IS)



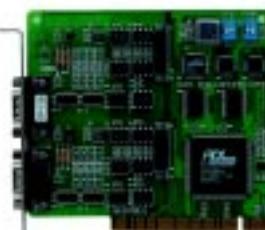
## Applications

- Multipoint data acquisition
- Industrial control
- Factory automation
- Embedded industrial machine
- Remote serial device control
- SCADA

**NEW**



**CP-132IS**



**CP-132I**



**CP-132S**



**CP-132**

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	16C550C or compatible x 2, each with 16 bytes Tx/Rx FIFO
Connector type	Male DB9

### Interface

Bus interface	PCI ver. 2.1(32bit)
Serial interface	RS-422/485
No. of port	2
Signals	RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND RS-485: Data+/-, GND
RS-485 data control	Auto (Automatic Data Direction Control) or by RTS
Built-in termination resistor	RS-422: 120 Ohm RS-485: 120 Ohm, jumper enable/disable

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	8 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	Assigned by BIOS
I/O address	Assigned by BIOS

### OS supported

CP-132	
CP132I	Windows 2000, Windows NT,
CP-132S	Windows 95/98, DOS
CP132IS	

### Power and Environment

Power requirement	
CP-132/CP-132S	: 430mA max. (+5V)
CP-132I/ CP-132IS	: 700mA max. (+5V)

Operating temp. 0 ~ 55°C

Dimension

CP-132: 120mm x 80mm

CP-132S: 120mm x 80mm

CP-132I: 120mm x 110mm

CP-132IS: 120mm x 110mm

Surge Protection CP-132S: 8KV ESD

CP-132IS: 8KV ESD

Isolation Protection CP-132I: 2KV

CP-132IS: 2KV

## Ordering Information

CP-132	2 ports RS-422/485 board (PCI), DB9 connectors
CP-132S	2 ports RS-422/485 board (PCI) with surge protection (25KV ESD), DB9 connectors
CP-132I	2 ports RS-422/485 board with optical isolation (2KV), DB9 connectors
CP-132IS	2 ports RS-422/485 board with optical isolation (2KV) and surge protection (25KV ESD), DB9 connectors
All items include	<ul style="list-style-type: none"> <li>Windows NT, 95/98 and DOS drivers and manual</li> <li>MOXA PComm Lite serial comm developing tool</li> </ul>

# Industio CI-132 Series

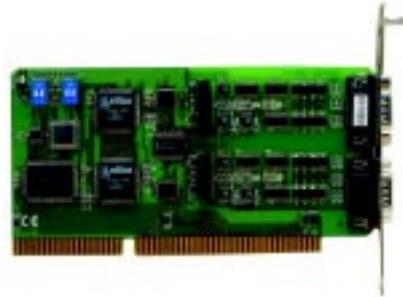
2 Ports RS-422/485 Industrial Communication Board for ISA



## Overview

The Industio CI-132 series is designed for RS-422/485 industrial communication. It supports 2 independent RS-422 or RS-485 ports, which can control up to 64 devices in a multidrop environment.

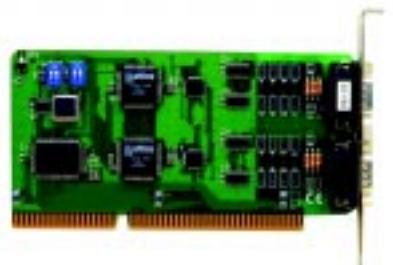
Automatic Data Direction Control (ADDC) intelligence is built on each CI-132 board to eliminate the need of software interference. Hence, applications can easily manage the data transmitting and receiving of the half-duplex RS-485 port without extra code. In addition, on-chip hardware flow control, built-in termination resistors, optional optical isolation and surge protection deliver high reliability for harsh industrial applications.



CI-132IS



CI-132I



CI-132



## Features

- Support Automatic Data Direction Control (ADDC) intelligence to simplify the RS-485 software programming
- Built-in termination resistors, no headache for impedance matching
- ASIC design, Compact board size (half-size), suitable for any PC cabinet
- On-chip hardware flow control, no data loss
- Support surge protection, max. 25KV ESD (CI-132IS)
- Support optical isolation, max. 2KV (CI-132I, CI-132IS)



## Applications

- Multipoint data acquisition
- Industrial control
- Factory automation
- Embedded industrial machine
- Remote serial device control
- SCADA

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	Male DB9
Connector type	16C550C or compatible x 2

### Interface

Bus interface	ISA(16 bit)
Serial interface	RS-422/485
No. of port	2
Signals	RS-422: TxD+/-, RxD+/-, RTS+/-, CTS+/-, GND RS-485: Data+/-, GND
Built-in termination resistor	RS-422: 120 Ohm RS-485: 120 Ohm, jumper enable/disable

### Performance

Speed	50 ~ 921.6K bps
Max. no. of port	8 (4 boards)

### Configuration

Parity	None, even, odd, space, mark
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	2(9), 3, 4, 5, 7, 10(Default), 11, 12, 15
I/O address	0x0000 ~ 0xFFFF Default: 0x180

### OS supported

CI-132	Windows 2000, Windows NT,
CI-132I	Windows 95/98, DOS

### Power and Environment

Power requirement	
CI-132 :	240mA max. (+5V)
CI-132I :	520mA max. (+5V)
CI-132IS:	790mA max. (+5V)
Operating temp.	0 ~ 55°C
Dimension	157mm x 75mm

Surge protection	25KV ESD (Optional)
Optical isolation	2KV (Optional)

### Ordering Information

CI-132	2 ports RS-422/485 board
CI-132I	2 ports RS-422/485 board with optical isolation (2KV)
CI-132IS	2 ports RS-422/485 board with optical isolation (2KV) and surge protection (25KV ESD)
All items include	<ul style="list-style-type: none"> <li>Windows NT, Windows 95/98, and DOS drivers and manual</li> <li>MOXA PComm Lite serial comm developing tool</li> </ul>

# Transio Family



## Transio A52/A53

### Smart RS-232 to RS-422/485 Bi-directional Converter

- Automatic Data Direction Control (ADDC), no baud rate switch setting for RS-485
- RS-485 data control modes: auto (ADDC) or by RTS
- RS-422 hardware flow control: CTS, RTS signals
- LED indicators for power and signal state
- Over current protection when there are 2 signals shorted together at RS-422/485 end
- 32 units connected together in RS-485 multidrop operation
- Surge protection: 25KV ESD
- Optical isolation: 2KV (A53)
- Built-in termination resistors
- Power requirement: 9V ~ 30V, 350mA
- Dimension: 90mm x 60mm x 21mm



A52/53



Optional power adapter can supply up to 4 converters



## Transio 50/A51

### RS-232 to RS-422/485 Bi-directional Converter

- Controlled by RTS selectable
- LED indicators for power and signal state
- Support high-speed baudrate up to 921.6K bps
- 4-wire full duplex/2-wire half duplex selectable
- Provide termination resistor position
- Distance up to 4000ft (1.2km under 100K bps)
- Optical isolation: 2KV (A51)
- Power requirement: 9V ~ 30V, 150mA
- Weight: 76g (A50), 80g (A51)
- Dimension: 90mm x 60mm x 21mm



A50/51



## Transio A60

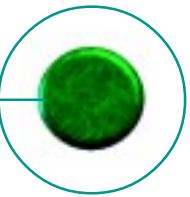
### RS-232 Surge Protector

- Surge voltage: 2KV
- LED indicators for signal state
- Non-powered
- Weight: 68g
- Dimension: 90mm x 60mm x 21mm



A60

# Surge Protection



## What's the Problem?

Surges are high amplitude pulses of merely several millionths of a second in duration. They may come from severe weather (e.g. lightning), short circuits, power switching or large motor turning on/off.

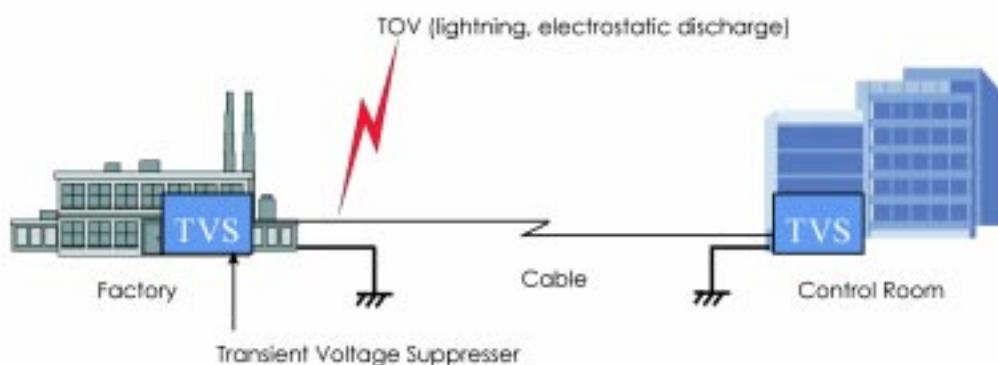
They are, in fact, too short to be seen by instrument but they can have destructive effects on computers and other electronic equipment. For example, the data could be disrupted, computer equipment could be damaged and the system is lockup just because of the surges.

## Does MOXA Support TVSS?

Yes. As a leading provider of serial communication products, MOXA introduces the TVSS technology into our multiport serial product line. Our aim is to provide a secure, reliable while cost/effective solution to improve the communication environment. And hence protect the client investment. Please contact us for the products with TVSS technology.

## Do I Need Surge Protection?

A surge is a redistribution of energy often caused by lighting, switching and large motors, etc. However, surges can occur on a regular basis as well. It is estimated that more than 50% of the surges are generated inside your own building. To better protect your system and minimize the system downtime, it is recommended that “Transient Voltage Surge Suppression”(TVSS) is used.



# PCMCIA Communication Card

2 or 4 Ports RS-232 or RS-422/485 PCMCIA Card for Mobile Data Acquisition Applications

## Overview

The COMpad-32B and COMpad-85B PCMCIA Type II communication cards add 2 or 4 RS-232 or RS-422/485 ports to a notebook PC for attaching serial devices, such as modems, bar code scanners, GPS receivers, digital cameras, PLCs, CNCs, data collection gear, lab equipment, etc. It turns the notebook into a mobile data acquisition and data control equipment, for example, a notebook-based Data Scope or data logger.

Each COMpad-32B/85B comes with Windows NT, Windows 95/98 and DOS drivers. For DOS, powerful developing library and useful utilities are also included. The library supports most common languages, including C, Pascal, Quick Basic, Assembly and Clipper. The utilities include a DataScope data viewer, a terminal emulator, and self-diagnostic utilities for easy troubleshooting and debugging. For serial comm developing tools under Windows NT and Windows 95/98, PComm Pro is optionally available.



**COMpad-32B/85B**

## Applications

- Mobile data monitoring and collection
- Communication diagnostic systems
- Remote data acquisition and control
- Instrument controller for distributed control systems
- RS-485 Multi-drop data collection
- Other portable computer applications

## Features

- Standard COM port compatible, working with already-made applications
- Perfect for mobile data acquisition applications under multitasking environments such as Windows NT, and Window 95/98
- Built-in buffer to meet the high speed demand of peripherals such as cameras and 56K modem
- Support easy-to-use serial comm developing tools for DOS
- Support useful utilities, Data Scope, Terminal Emulator and diagnostic for DOS

# COMpad-32B/85B

Port	2	4	8	16	32
Interface	232	422	485		

## Specification

### Hardware

I/O controller	COMpad-32B/85B-2: 16C550 or compatible x 2, each with 16 byte Tx/Rx FIFO
COMpad-32B/85B-4: 16C550 or compatible x 4, each with 16 byte Tx/Rx FIFO	
Connector type	Male DB9

### Interface

Bus interface	PCMCIA Type II
Serial interface	COMpad-32B: RS-232 COMpad-85B: RS-422/485
No. of ports	COMpad-32B/85B-2: 2 COMpad-32B/85B-4: 4
Signals	COMpad-32B RS-232: TxD, RxD, RTS, CTS, DTR, DSR, CD, RI COMpad-85B RS-422/485: TxD+/-, RxD+/-, GND

### Performance

Speed	50 ~ 115.2K bps
-------	-----------------

### Configuration

Parity	None, even, odd
Data bits	5, 6, 7, 8
Stop bits	1, 1.5, 2
IRQ	3, 4, 5, 7, 9, 10, 11, 12, 15
I/O address	COMpad-32B/85B-2: COM 3/4(3E8h/2E8h) or 16 consecutive bytes from 330h to 36Fh
COMpad-32B/85B-4: COM 5/6/7/8(240h/248h/250h/258h)	or 32 consecutive bytes from 340h to 35Fh

### OS supported

COMpad-32B/85B-2	Windows NT, Windows 95/98, DOS
COMpad-32B/85B-4	

### Power and Environment

#### Power requirement

COMpad-32B-2: 5V, 100mA typical, 120mA Max

COMpad-85B-2: 5V, 80mA typical

COMpad-32B-4: 5V, 200mA typical, 240mA Max

COMpad-85B-4: 5V, 160mA typical

#### Operating temp.

0 ~ 55°C

## Ordering Information

COMpad-32B-2	2 ports PCMCIA RS-232 card
COMpad-32B-4	4 ports PCMCIA RS-232 card
COMpad-85B-2	2 ports PCMCIA RS-422/485 card
COMpad-85B-4	4 ports PCMCIA RS-422/485 card

## Optional Developing Tool

MOXA PComm Pro	Professional serial comm developing tools for Windows NT, Windows 95/98, including ease-to-use library, debugging cable and useful utilities, such as Data Scope, Terminal Emulator, and Performance Analyzer.
----------------	--

# MOXA PComm Pro

*Professional Serial Comm Developing Tool for Windows 2000, Windows NT, Windows 95/98*

## Overview

Software developers must often be puzzled by the Microsoft Win32 COMM API, as developing serial comm applications under Windows 2000, Windows NT, Windows 95/98. Because Win32 COMM API is general purpose and is very complex in its syntax.

MOXA PComm Pro offers you a better solution. No matter what brand multiport serial boards you have used, standard COMs, Digi, Equinox, Moxa or others, MOXA PComm Pro is the right tool for you.

MOXA PComm Pro is aimed to help you:

- Speed up serial comm application development
- Troubleshoot serial comm problem between two devices
- Analyze serial comm performance

MOXA PComm Pro includes easy-to-use API functions that are specially designed for async comm, and eliminates the problems inherent to the more complex Microsoft Win32 API, reducing developing time and cost.

In addition, MOXA PComm Pro provides useful utilities, such as Data Scope and Performance Analyzer, that help you quickly troubleshoot the serial comm problem.

## Easy to Develop

MOXA PComm Pro provides over 50 easy-to-use API functions with VB, C/C++ and Delphi interface that are specially designed for serial comm - unlike Microsoft Win32 COMM API, where those functions are general purpose and thus very complicated for serial comm developer.



**MOXA PComm Pro**

MOXA PComm Pro also supports built-in function for file transfer protocols such as ZModem, YModem, XModem, Kermit and ASCII that make file uploading and downloading programming easier than ever before.

## Easy to Troubleshoot

The Data Scope utility, using two standard COM ports, acts as a PC-based data scope which lets you set a trigger condition, capture the comm data, and monitor the signal status with time stamp on a RS-232 line. The under-monitor line speed can be as high as 921.6K bps, depending on the COM ports. You can also save the various data and status to hard disk for later analysis. With the supplied debugging cable, the comm activities are monitored on-line without interference.

## Wide Compatibility

MOXA PComm Pro supports not only standard COM ports, but also all multiport boards that support Win32 COMM API. For example, Digi, Equinox, Moxa, and so on.

## Features

- Easy-to-use API (more than 50 functions)
- Support ZModem, YModem, XModem, Kermit and ASCII file transfer protocols
- Support VB, C/C++, Delphi interface and example programs
- Support serial comm speed up to 921.6K bps
- Support Multi-session Terminal Emulator (VT100, ANSI)
- Support Data Scope utility to monitor the comm line activity ( debugging cable included )
- Support serial comm Performance Analyzer
- Compatible to any standard COM port supporting Win32 COMM API
- Free lifetime upgrade

## System Requirements

- Intel-compatible processor PC
- Windows 2000, Windows NT (3.51/4.0) or Windows 95/98
- 2.5MB hard disk space

## Ordering Information

SL-901	<ul style="list-style-type: none"><li>• MOXA PCComm Pro for Windows 2000, Windows NT, Windows 95/98</li><li>• 1 user license</li><li>• Debugging cable</li><li>• CD and manual</li></ul>
SL-905	MOXA PCComm Pro 5 additional user licenses (must have purchased SL-901)

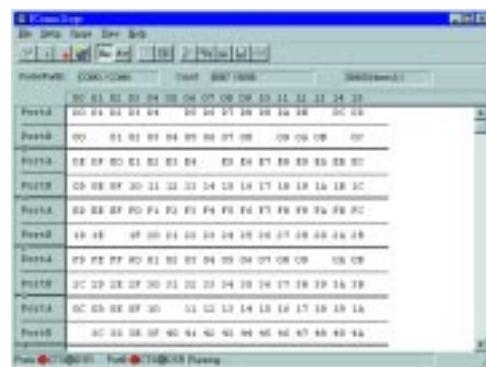
## Terminal Emulator



## Performance Analyzer



## Data Scope



# Multiport Sync Board

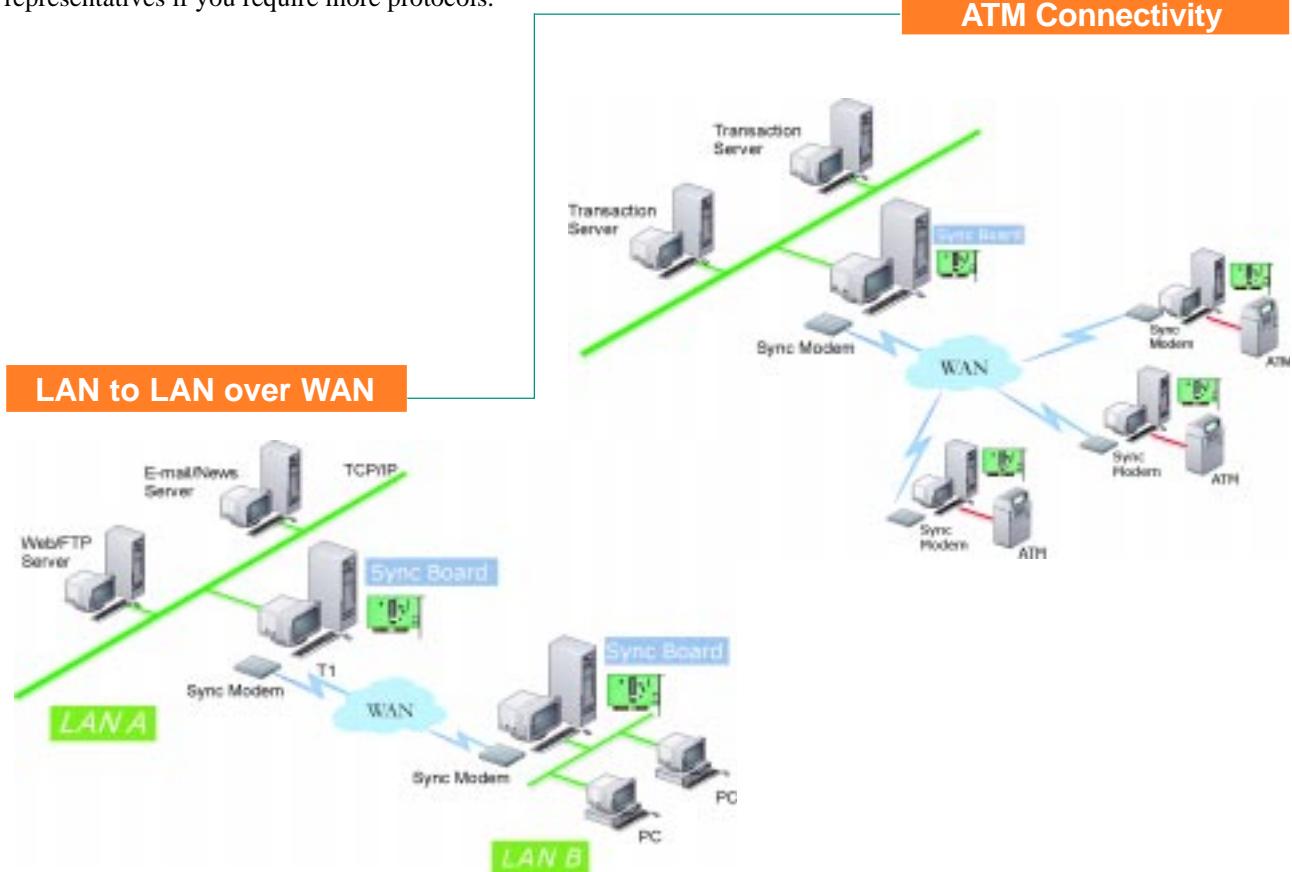
**M**OXA multiport sync board consists of cost-effective programmable sync boards, providing high performance synchronous communications with reasonable prices. MOXA multiport sync boards are available in ISA, and PCI bus, with 1/2/4 RS-232/V.35 sync ports.

Cutting-edge hardware and software technology helps boost overall performance. Direct Memory Access(DMA) technology is deployed to reduce system overhead and drives speed up to 7Mbps.

Bit sync and byte sync protocols, such as HDLC, SDLC, and BSC, are supported with developing libraries, to assist you in developing own applications. Contact Moxa sales representatives if you require more protocols.

Due to the fast speed and strict security, sync board is more applied than before in major systems described below.

- KIOSK, Bank automatic teller machine(ATM) connectivity
- LAN-to-LAN over WAN
- Video/multi-media transmission
- Satellite communication
- T1/E1 routing
- Sync modem
- HDLC programming- X.25, Frame Relay development



# HDLC Programming Library

## What is HDLC?

High-Level Data Link Control (HDLC) standard is so far one of the most widely used synchronous data link control protocol. HDLC is a group of protocols or rules for transmitting data between network points (sometimes called nodes). In HDLC, data is organized into a unit (called a frame) and sent across a network to a destination that verifies its successful arrival. The HDLC protocol also manages the flow or pacing at which data is sent. HDLC is a bit-oriented line protocol specification, corresponding to Layer 2 (Data Link Layer) of Open Systems Interconnection (OSI).

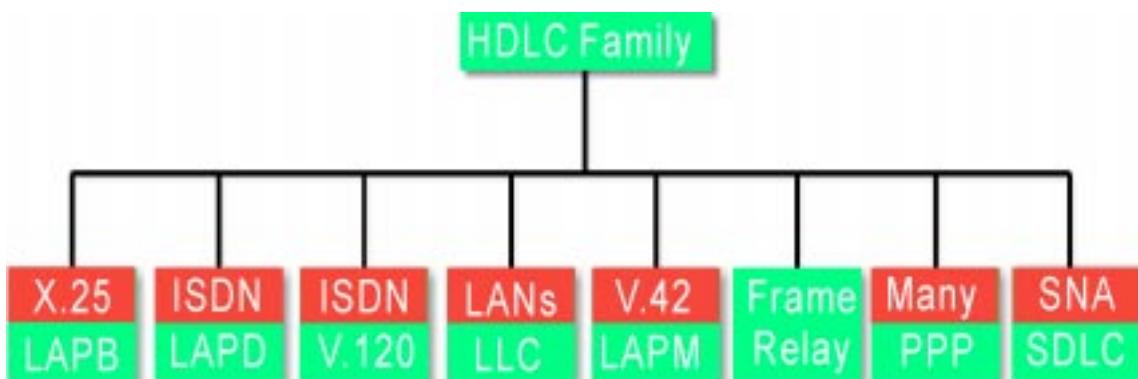
## Why is HDLC important?

The HDLC protocol has been used as a basis for the development of a number of other widely used link layer protocols. These protocols illustrate the importance of HDLC in developing modern network applications. As the figure shows, HDLC applications (in green columns)

are applied in various fields of technologies or network layers (orange columns). Each of these protocols is a derivation of HDLC and uses various combinations of HDLC features with own protocol-specific operations. By knowing HDLC, one can easily grasp basic operations of the widely used protocols derived from HDLC.

## How to develop HDLC?

MOXA multiport sync board products provide easy-programming Sync API for DOS, Windows 3.x and Windows NT environment and cover C/C++, Visual Basic, and Delphi languages. MOXA Sync API provides physical layer interface for HDLC, therefore programmers do not have to consider bit sync details. Comprehensive API functions are also helpful for developing higher level of protocols or applications. MOXA Sync API is based on easy-to-use DOS concepts for developing multi-task functions of Windows NT, bringing users the true handy tool for sync application development.



# C502 Dual-Port Sync Board

*Dual-Port High Speed Synchronous Board for Windows NT*



## Overview

MOXA C502 Dual-Port Sync Board for Windows NT provides high-speed synchronous communication solutions for X.25, Frame Relay, SS7 or other synchronous communication programming. Cutting-edge hardware components with handy API functions easily turn C502 into any synchronous application, such as ATM, Satellite, or KIOSK connectivity.

The HDLC Windows NT driver provides complete HDLC layer 2 data communications control conforming to CCITT, ITU, and industry standards for layer 2 protocols, including frame formatting, bit stuffing, and error detection. To further help synchronous developers, C502 brings simplified configuration and the most straight forward Sync API functions. C/C++, Delphi, or Visual Basic are all supported for programmers.

Onboard RISC CPU combined with dual-port memory effectively reduces burden of server CPU and brings overall performance far beyond T1/E1, up to 4Mbps on each port. Renowned Hitachi Serial Communication Adapter(SCA), which converts parallel data to serial data for communication with other devices, supports both synchronous ports with two independent full-duplex transceivers. FIFO transmit and receive buffer and a four-channel direct memory access controller(DMAC) enable high-speed transfer between SCA and memory.

**NEW**



**C502-PCI**



**C502-ISA**

## Applications

- T1/E1 communication
- Sync modem communication
- Satellite communication
- Automatic Teller Machine communication
- KIOSK connectiving



## Features

- Top-level onboard RISC CPU
- Synchronous baud rate up to 8Mbps(PCI); 4Mbps(ISA)
- Easy-to-use Windows NT HDLC development tool
- C/C++, Delphi, Visual Basic programming library
- V.35/RS-232 selectable interface

Port	1	2	4
Interface	RS-232	V.35	



## Specification

### Hardware

CPU	IDT 79R3041 RISC
USART	HD64570-10 Serial Communication Adapter with DMA Controller
RAM	1M bytes dual-ported RAM
SRAM	128K bytes

### Interface

PC bus	ISA/PCI Bus
Number of ports	2 sync ports
Sync interface	RS232, V.35 selectable

### Performance

Speed	8 Mbps (PCI); 4 Mbps (ISA)
Max. board	Max. 4 boards per system

### Configuration

IRQ	2,3,4,5,7,10,11,12,15(jumperselectable)
Transmit clocking	Internal/ External (software selectable)

### User Interface

OS	Windows NT 4.0
Protocol	Sync API
Sync API	RS232, V.35 selectable

### Power & Environmental

Max. power requirements	1.05A(5 Volt);37mA(+12 Volt);60mA(-12 Volt)
Operating temp.	0 ~ 55°C
Shipping weight	0.85kg
Dimensions	180mmx100mm



## Ordering Information

C502-ISA/232	<ul style="list-style-type: none"> <li>• 2-Port Intelligent Sync Board, ISA bus</li> <li>• RS-232 connection cable (1 meter)</li> <li>• Windows NT driver and User's Manual</li> </ul>
C502-ISA/35	<ul style="list-style-type: none"> <li>• 2-Port Intelligent Sync Board, ISA bus</li> <li>• V.35 connection cable (1 meter)</li> <li>• Windows NT driver and User's Manual</li> </ul>
C502-PCI/232	<ul style="list-style-type: none"> <li>• 2-Port Intelligent Sync Board, PCI bus</li> <li>• RS-232 connection cable (1 meter)</li> <li>• Windows NT driver and User's Manual</li> </ul>
C502-PCI/35	<ul style="list-style-type: none"> <li>• 2-Port Intelligent Sync Board, PCI bus</li> <li>• V.35 connection cable (1 meter)</li> <li>• Windows NT driver and User's Manual</li> </ul>

# C101 SuperSync Board

*The Economic Sync I/O Solution*

## Overview

C101 SuperSync Board is the most cost effective board for software developers looking for low cost synchronous communication hardware. With one programmable RS-232 (or V.35) port, C101 is able to connect a wide range of hosts in public or proprietary communication protocols.

C101 deploys Hitachi HD64570 Serial Communications Adapter (SCA) chip, a highly integrated communications subsystem, including sync/async port, built-in DMA controller, 32 byte FIFO, interrupt and timer logic. Direct Memory Access (DMA) technology also helps C101 to lower system overhead and boost speed of up to 7M bps. Onboard dual ported memory is directly addressable by both the system and SCA's DMA.



**C101**

## Features

- Powerful serial communication adapter, Hitachi HD64570
- Sync I/O rate up to 7M bps
- V.35/RS-232 selectable interface
- Sync API available

## Applications

- Sync modem communication
- T1 DSU/CSU connection
- Sync Programming

Port	1	2	4
Interface	RS-232	V.35	

## Specification

### Hardware

USART	Hitachi HD64570 Serial Communication Adapter with DMA Controller
RAM	256K bytes dual-ported RAM

### Interface

PC bus	ISA bus
Number of ports	1 sync port
Sync interface	RS-232/V.35 interface selectable

### Performance

Speed	7Mbps(V.35); 128Kbps(RS-232)
Max. board	Max. 1 boards per system

### Configuration

IRQ	2,3,4,5,7,10,11,12 or 15 (jumper selectable)
Transmit clocking	Selectable by jumper

### User Interface

OS	DOS, Windows 3.X
Protocol	HDLC
Sync API	C(DOS), DLL(Windows)

### Power & Environmental

Max. power requirements	555mA(5 Volt); 17.1mA(+12 Volt); 22mA(-12 Volt)
Operating temp.	0 ~ 55°C
Shipping weight	0.3Kg
Dimensions	160mm x 92mm

## Ordering Information

C101

- 1-Port SuperSync Board, ISA bus, RS-232/V.35 interface
- DOS, Windows 3.X drivers and User's Manual

# C204 Intelligent 4 Port Sync/Async Board

*Best Suited for Protocol Developing Applications*

## Overview

MOXA C204 Intelligent 4 Port Sync/Async Board is a cost effective board for applications requiring high performance synchronous/asynchronous communication. Combined microprocessor and integrated communication chip technology, MOXA C204 is capable of delivering a variety of sync/async applications.

MOXA C204 is an intelligent board with four individually programmable RS-232 or V.35 ports. Zilog 85C30 Serial Communication Controller (SCC) technology is deployed to better integrate performance. The reliability-proven integrated chips are able to support a number of standard and proprietary async and sync protocols including such bit and byte-oriented protocols as HDLC, SDLC and BSC. DMA-to-shared memory architecture helps to reduce system load and boost speeds to 64K bps (RS-232 interface) or 1.544M bps (V.35 interface).



## Features

- 4 individually programmable RS-232/V.35 ports
- Onboard CPU and 512Kbytes RAM to relieve system load
- Sync Speed up to 64Kbps(RS-232), or 1.544Mbps(V.35)
- Sync/Async API available
- Firmware upgradeable

## Applications

- BSC, HDLC, SDLC protocol development
- Sync/Async communication programming

Port	1	2	4
Interface	RS-232	V.35	

## Specification

### Hardware

CPU	12MHz 80286 processor
USART	Z85C30 Serial Communication Controller
RAM	512K bytes dual-ported RAM

### Interface

PC bus	ISA bus
Number of ports	4 sync/async ports
Sync/Async interface	RS-232/V.35 interface selectable

### Performance

Speed	Sync speed up to 64K bps (RS-232) or 1.544M bps (V.35) Async speed up to 115.2K bps (RS-232)
Max. board	Max. 4 boards per system

### Configuration

IRQ	10, 11, 12, 15 software configuration
Hardware setting	No switch no jumper

### User Interface

OS	DOS
API	Sync/Async API
Protocol	HDLC, BSC, SDLC, Async
Sync API	C

### Power & Environmental

Max. power requirements	2A(+5V) 75mA(+12V) 75mA(-12V)
Operating temp.	0 ~ 55°C
Shipping weight	1.6 kg
Dimensions	288mmx108mmx15mm

## Ordering Information

C204/232	<ul style="list-style-type: none"> <li>4-Ports Intelligent Sync/Async Board, ISA bus</li> <li>RS-232 cable(DB25, Male)</li> <li>DOS driver and User's Manual</li> </ul>
C204/35	<ul style="list-style-type: none"> <li>4-Ports Intelligent Sync/Async Board, ISA bus</li> <li>V.35 connection cable(DB25, Male)</li> <li>DOS driver and User's Manual</li> </ul>

### Optional Accessories

Opt35	V.35 DB25 to 34-pin changer
-------	-----------------------------

# SD1000 Internet Sharer

*Economic Internet Sharing and Simple Routing Device for Small Offices*

## Overview

Now small offices do not have to invest in costly network equipment to access Internet. After a few simple steps, people in small offices can start sharing Internet access such as Web browsing, Telnet, or e-mails with minimum cost.

SD1000 Internet Sharer is a simple, yet powerful internet sharing device that gives you simultaneous multi-user Internet access by sharing one phone line, one modem and one Internet account. With four 10BaseT LAN ports connecting to four local users, SD1000 establishes shared internet access via one modem attaching to the high-speed RS-232 port. Functionality, such as dial-on-demand, IP address translation, virtual E-mail addresses etc., is easily provided for each user in the most cost-effective way.

SD1000 Internet Sharer is also an economic solution for small offices to connect to head offices. By dialing up to MOXA Async Server in head office, SD1000 performs simple router and hub to users in small offices for enterprise network access.

## Features

- 56 Kbps and ISDN high-speed connectivity for multiple users to access internet simultaneously through one dial-up line, one modem and one ISP account



**SD1000**

- 64 built-in virtual mailboxes for each user without mail server on your network
- Easy windows based installation with monitor program Dial-on-demand and auto-disconnection
- Allows at least four users connecting to Internet simultaneously
- Compatible with most operating systems
- Compatible with major web browsers-Internet Explorer, Netscape, and FTP, Telnet, Email services applications
- Plug & Play, requiring no technical knowledge
- Fully compatible with ISP dial-up PPP protocol
- Provides security and natural firewall
- In conformance to FCC, CE

## Applications

- Multi-User Internet Access for small Offices
- Economic Corporate Intranet Access for Branch Office Connectivity

## Specification

### Hardware

RAM	512K bytes RAM
-----	----------------

### Interface

LAN	four 10BaseT ports with RJ-45 connector
WAN	one RS-232 port with DB9 connector
LED indicator	Power, Collision, Link/Receive, Modem Ready, COM Port status

### Performance

Speed	Up to 230.4 Kbps
-------	------------------

### Software

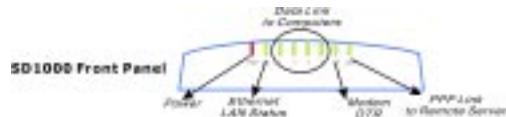
Protocol	TCP/IP, Telnet, HTTP, SMTP, POP3, NNTP, FTP, IRC, Gopher, DHCP
Security	PAP/CHAP
Number of TCP sessions	64 concurrent
Virtual email boxes	64
Connection	Dial-On-Demand and automatic disconnection

### Operation & Environmental

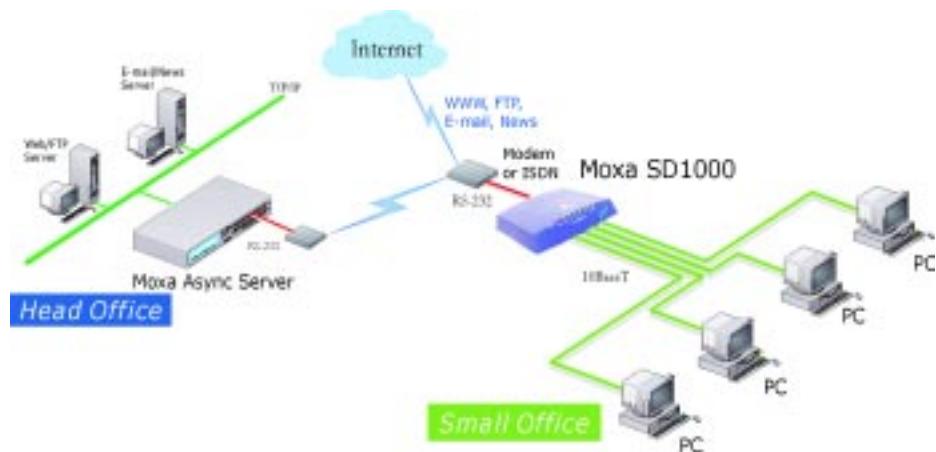
Dimension	180mm X 130mm X 30mm (7.09in X 5.12in X 1.18in )
Power requirement	DC 5V, 1.2 Amp.
Operating temp.	0 ~ 55°C

## Ordering Information

SD1000/110V	Internet Sharer with four 10BaseT interfaces and 110V power adapter
SD1000/220V	Internet Sharer with four 10BaseT interfaces and 220V power adapter



## Internet Sharing & Simple Routing



# Product Specification Table

Model		Network-Based Server				Multiport Async Board									
		Async Server		NPort Server		Intellio									
		CN2500	CN2100	Lite		C320Turbo/PCI	320Turbo	C218Turbo/PCI	C218Turbo	CP-204J					
Serial Interface	Type	RS-232		RS-232/422/485		RS-232/422	RS-232/422	RS-232/422/485	RS-232/422/485	RS-232					
	No. of port	4/8/16	8 or 16	1	2	4	8	16	8 to 32	8 to 32	8				
	Max. no. of port	Unlimited		Unlimited		128	128	32	32	16					
	Connectors (Male/Female)	RJ45		DB9(M)	RJ45	RJ45 DB25(M/F)		DB9(M) DB25(M/F)		RJ45					
Bus		Not Applicable				PCI	ISA	PCI	ISA	PCI					
LAN		10/100BaseT	10Base2/T	10/100BaseT	10Base2/T	Not Applicable									
Processor		i960		80186	i960	TMS320BC52		TMS320BC203							
Memory (bytes)		2M	1M	512K	1M	512K									
I/O Controller		16C654	16C550C	16C550C	16C550C	16C550C or compatible									
Max. speed (bps)		230.4K	921.6K	230.4K	921.6K	460.8K		921.6K							
Surge protection		15KV	O	15KV	O	O	O	O	O						
Optical isolation						O	O	O	O						
On-chip hardware flow control		Yes													
Rack-mount		Standard19"	Kit Enclosed		Kit Enclosed	Kit Enclosed	Kit Enclosed								
PC OS Support	Windows 2000	A	A			R	R	R	R	R					
	Windows NT3.51/4.0	V	V	V	V	V	V	V	V	V					
	Windows 95	A	A	V		V	V	V	V	V					
	Windows 98	A	A	V		V	V	V	V	V					
	Windows 3.x	A	A				V		R						
	MS DOS	A	A			R	V	R	V	R					
	AT&T UNIX SVR4.2	A	A			V	V	V	V	R					
	MITUX SVR4.2	A	A			V	V	V	V	R					
	Unix Ware SVR4.2	A	A		R	V	V	V	V	R					
	Unix Ware7 SVR5	A	A		R	V	V	V	V	R					
	SCO Open Server, SCOUNIX	A, F	A, F		R	V	V	V	V	R					
	SCO XENIX	A	A			V	V	V	V	R					
	SunSoft Solarisx86 2.X	A	A				V								
	Linux 2.0.x (Intel x86)	A	A		R	V	V	V	V	V					
	Linux 2.0.x (Alpha)	A	A			V	V	V	V	V					
Workstation OS Support	Linux 2.2.x (Intel x86)	A	A		R	V	V	V	V						
	Linux 2.2.x (Alpha)	A	A			V	V	V	V	V					
	QNX	A	A			R	V	R	R	R					
	OS/2	A	A												
	FreeBSD	A	C												
Workstation OS Support	IBM AIX	A, F	A, F												
	Sun Solaris	A, F	A, F												
	HP-UNIX	A, F	A, F												

A: ASPP programmable protocol supported

C: Compatible with OS

D: Download from Moxa web site

F: Fixed Tty    O: Optional    R: By request    V: Shipped with product

# Moxa Global Sales Offices

Country	City	Tel	Fax
Australia	Victoria	+61-3-9521-0266	+61-3-9521-0356
Brazil	Sao Paulo	+55-11-5631-2955	+55-11-5631-5392
Cyprus	Nicosia	+357-2-496-655	+357-2-496-019
Czech	Ostrava	+420-69-6152244	+420-69-6152562
Denmark	Copenhagen	+45-56-662020	+45-56-662030
Denmark	Copenhagen	+45-44-858000	+45-44-858005
France	Paris	+33-1-46520103	+33-1-46-520104
Germany	Hemsbach	+49-6201-75437	+49-6201-74246
Germany	Hamburg	+49-40-528 401-0	+49-40-528 401-99
India	Bangalore	+91-80-5452195	+91-80-5459910
India	Mumbai	+91-22-518-1900	+91-22-518-1930
Israel	Tel Aviv	+972-9-7677555	+972-9-7677377
Italy	Torino	+39-011-9517711	+39-011-9517748
Japan	Tokyo	+81-3-5700-2121	+81-3-5700-0076
Japan	Tokyo	+81-3-5296-0930	+81-3-5296-0931
Japan	Osaka	+81-6-6765-0737	+81-6-6765-0901
Japan	Osaka	+81-6-6415-2641	+81-6-6415-2640
Korea	Seoul	+82-2-32740836	+82-2-32740839
Kuwait	Kuwait city	+965-2411881	+965-2411880
Malaysia	Kuala Lumpur	+603-7341017	+603-7348532
Norway	Oslo	+47-2212-8350	+47-2212-8360
Pakistan	Karachi	+92-21-454-8103	+92-21-4535382
Poland	Warsaw	+48-22-8282911	+48-22-8282910
Russia	Moscow	+7-095-174-3550	+7-095-174-3274
Singapore	Singapore	+65-3381300	+65-3381900
Singapore	Singapore	+65-777-4300	+65-777-5606
South Africa	Cape Town	+27-21-4234943	+27-21-4244637
Spain	Barcelona	+34-93-3386154	+34-93-3373910
Sweden	Stockholm	+46-8-7330020	+46-8-7332161
Switzerland	Zurich	+41-1-878-9090	+41-1-878-9099
Thailand	Bangkok	+662-6685080	+662-6685081
The Netherlands	Roosendaal	+31-165-557417	+31-165-562151
The Netherlands	BREDE	+31-318-636262	+31-318-636300
Turkey	Istanbul	+90-212-2576238	+90-212-2577125
U.K.	London	+44-181-8109966	+44-181-8109977
U.K.	Brighton	+44-1273-570220	+44-1273-570215
U.K.	London	+44-1732-861000	+44-1732-863747
Ukraine	Kiev	+380-44-2287321	+380-44-2302957
USA	Cleveland	+1-330-920-6000	+1-330-923-2932
USA	California	+1-626-934-199	+1-626-934-1189

Find out more information at [www.moxa.com.tw](http://www.moxa.com.tw)



## Moxa Technologies Co., Ltd.

Fl.8, No.6, Alley 6, Lane 235, Pao-Chiao Rd.,  
Shing-Tien City, Taipei Taiwan, R.O.C  
Tel:+886-2-8919-1230 Fax:+886-2-8919-1231  
info\_ctg@moxa.com.tw

## Moxa Tech USA, Inc.

Tel:+1-626-968-7500 Fax:+1-626-968-7411  
info@moxa.com

## Moxa Tech Beijing, Inc.

Tel:+86-10-6872-3959 Fax:+86-10-6872-3958  
info\_cn@moxa.com.tw

